JAN 29 1925

New Year Brings Activity—Page 335

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IRON TRADE REVIEW

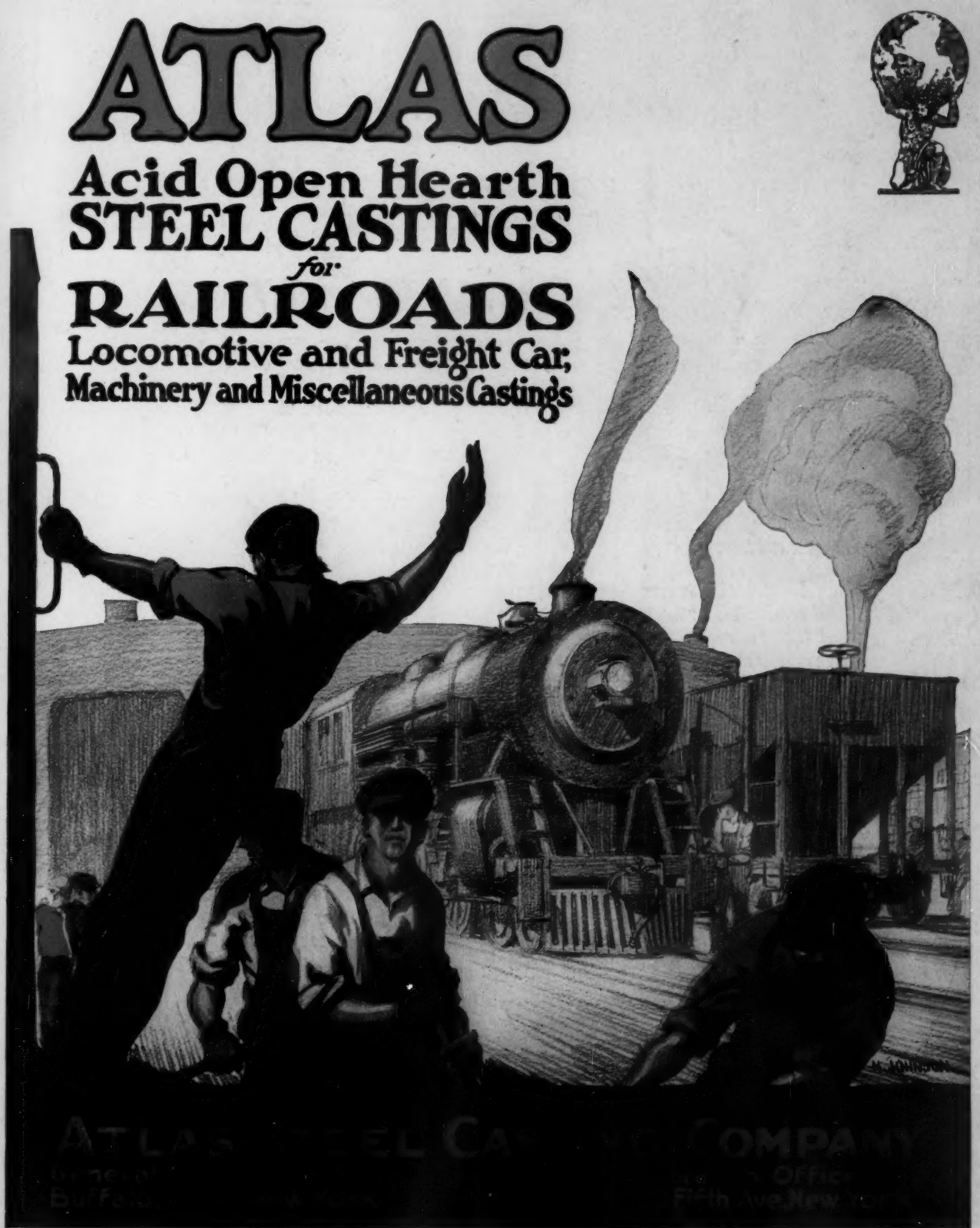
Registered U. S. Patent Office

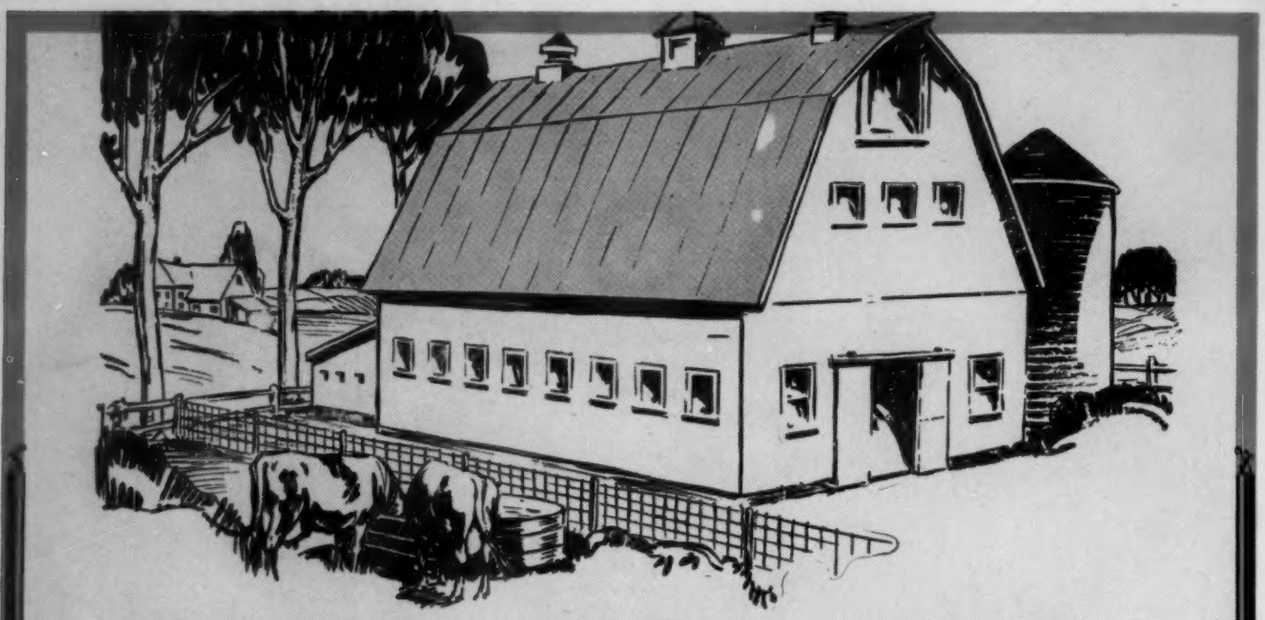
Published Weekly
VOL. LXXVI. No. 5

CLEVELAND, O., JANUARY 29, 1925

Entered as second-class matter at the post-office in Cleveland, Ohio, under the act of March 3, 1879

Six Dollars a Year
Single Copy 25 Cents





Sheet Metal Is a Savings Bank for the Farmer

THIS heading was not written by an advertisement writer, but by a farmer. He wrote it, not for an advertisement, but in reply to one of 10,000 questionnaires sent out to farmers all over the United States.

This Missouri farmer wrote also: "Galvanized corrugated sheets are used for roofing on most every farm in this district. I put on my barn second-hand sheets which had been used fifteen years previous and were just as good as new. I have used nothing but corrugated galvanized roofing on pitched roofs and have noticed the use of this material for twenty-five years. I consider it the cheapest and best roof that can be had."

This letter is typical of hundreds of the replies to these questionnaires. Sheet Steel roofs and siding for barns, corn cribs, granaries, hog and poultry houses, tool sheds and dwellings, are referred to frequently as having been in use for thirty years. Sheet Steel watering tanks and feeding troughs have been in service even longer. Sheet Steel linings for granaries, grain bins and corn cribs have paid for themselves many times over in stopping losses caused by rats.

To collect facts like these from original sources and to apply common sense in using these facts to build business for all who make or sell or use Sheet Steel—this is one of the purposes of the Trade Extension work of the Sheet Steel Industry.

How this plan is already operating to make more and better business for all is told in a booklet which will be of interest to you. Write for it now.

SHEET STEEL...
TRADE EXTENSION COMMITTEE

715 OLIVER BUILDING
PITTSBURGH PENNSYLVANIA

IRON TRADE REVIEW
Registered U. S. Patent Office
The Authority of Industry National and International
Vol. LXXVI Cleveland, January 29, 1925 No. 5

Market Loses Some Buoyancy

More Sluggish Tonnage Moving to Mills Causes Less Vigorous Tone—Production Remains at High Speed—Independent Mills, Seeking Specifications, Advance Prices for Second Quarter—Pig Iron Is Easier

SOME of the recent snap has gone out of the iron and steel market following the slowing down of new business and specifications against contracts which has become noticeable during the past two weeks. How much of this is due to the tremendous shipments the mills have been making, thereby satisfying the pressing needs of buyers, and how much to a slower movement in the expansion of consumption cannot be definitely stated. Apparently the industry has been making steel ingots in January at the rate of well over 45,000,000 tons annually, a sustained basis that has been duplicated by comparatively few periods in the past. This means the output of the industry has been run up 20 per cent in the last 60 days.

The situation as to incoming tonnage is a mixed one and the easier tone does not apply equally to all companies or districts. The strongest point is Chicago, where the mills are filled with business and are getting tonnage from the buyers at a rate that has caused deliveries to spread out considerably. This is especially true in steel bars. Because of this condition some Chicago district buyers including several warehouses have placed tonnage for quick shipment with Pittsburgh mills at a price $4 to $5 a ton over their local market. The strength of the Chicago situation is reflected by the reported booking of 16,000 tons of bars for second quarter by one maker at a $2 advance.

The question now is being raised in the industry as to how long the present high-speed production of 90 to 95 per cent can be maintained. As yet there are no signs of any material slackening.

Mills Lift Prices

Price advances on finished steel have been announced this week by various independent mills to apply to second quarter business. Plates, shapes and bars have been raised $2 per ton by large makers at Youngstown and Pittsburgh. Sheets have been similarly advanced by mills at Chicago and in the Youngstown district. With no appreciable pressure yet being made by buyers to be covered on second quarter tonnage, it is judged these advances have been dictated more to stimulate specifications against present contracts than to book additional future tonnage. These new prices are approximately $4 per ton above those at which the bulk of the tonnage for first quarter was sold. The Steel corporation schedules are unchanged.

Pig Iron Easier

Pig iron prices have eased off a bit in most districts except the South. Much of this softness is attributed to the influence of the lower market on coke. In the East heavier offerings of foreign iron $1 below domestic has been a chief factor.

Pig iron interests are expecting that the advance in Lake Superior iron ore prices will be 50 cents per ton but no sales yet have been made.

Some easiness in pig iron has been responsible for a slight recession in IRON TRADE REVIEW composite of 14 leading iron and steel products, the first dip in twelve weeks. The index this week stands at $41 compared with $41.10 last week.

Scrap has weakened further. It is down $2.50 from the peak at Chicago which is typical.

Railroad buying is less in volume. The Pennsylvania rail order for 100,000 tons and miscellaneous bookings for about 25,000 tons at Chicago are the principal items. Car buying has dropped off, though Chicago mills booked 50,000 tons additional this week against recent orders.

Building Is Active

Structural steel work is keeping up consistently its large tonnage record. The week's awards totaled 34,541 tons including one 8000-ton bridge over the Ohio river and another of 7500 tons at New York. A tabulation shows that for buildings exclusively, 540,000 tons was placed in the New York metropolitan district in 1924 compared with 450,000 tons in 1923.

St. Louis has closed for 14,000 tons of plate work for a water line and New York is taking bids on 6000 tons for the same purpose. An estuary tube at San Francisco will require 10,600 tons.

Iron and steel exports in 1924 were the smallest since 1914, totaling 1,830,862 tons. Imports, on the other hand, were 729 tons, which, excepting 1923 and 1922, was the largest in many years.

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The Reader's Page

Vol. LXXVI, No. 5 IRON TRADE REVIEW Jan. 29, 1925

What a Big Loss a Few Tons of Iron Ore Means

STATEMENTS pertaining to the Lake Superior iron ore industry generally bring out figures so large that they seem to smother their own significance. Shipments dropped from 61,000,000 tons in 1923 to 44,000,000 tons in 1924; a matter-of-fact record, apparently with little meaning outside of the industry. The loss in income to the producers, railroads and vessels, however, represented in the difference between those figures exceeds $85,000,000. Of this, the loss to railroads was approximately $26,441,000; to vessels $11,152,000, and to ore producers $47,907,000. Accepting a well known authority's statement that labor cost amounts to about 80 per cent of wholesale prices, it can readily be assumed the major portion of such misfortune fell on the miners of Minnesota, Michigan and Wisconsin, railroad, dock, and marine labor. But to return to big figures: IRON TRADE REVIEW's compilation shows that all shipments to date total 1,178,422,215 tons. More than a billion tons have been shipped in the last 25 years. IRON TRADE REVIEW has been keeping the count; starting when the first shipping records were not lost in antiquity. With reserves of 3,000,000,000 tons as estimated by competent geologists it is a fair inference that the Lake Superior district will be shipping ore 75 years hence. Annual shipments in the last 25 years averaged 40,000,000 tons. With a 50 per cent increase for the next 25 years, only half the present reserves will be shipped out in that time.

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Pig Iron Prices Softer—Valley Price of $22 Reappears—Coke Situation Causes Some Buyers to Wait

PITTSBURGH, Jan. 27.—The in-between-season lull in the pig iron market still is on. Shipments are heavy on first quarter contracts, and no holdups are noted. Inquiries for the second quarter are not expected before the middle of February. One or two in the 1000-ton class appear from time to time. One involving 1000 tons of mixed grades, No. 2, 2X, No. 1 and No. 3 was placed this week. The price was $23, valley, for the No. 2 grade, with 50-cent silicon differentials. Foundry iron is showing slight weakness since one valley merchant producer has quoted $22 valley on the base grade. The Westinghouse Air Brake Co., it is understood, did not pay more than that, since a $22.50 quotation failed to bring the order. A peculiar development is the appearance of numerous inquiries received by brokers for 200 to 500 tons at a time, although producers have no such business pending. This in a measure indicates the foundry iron melt is increasing, and this is borne out by increased contract specifications received by producers. From $22 to $22.50 is quoted for this quarter, and 50 cents higher for the second. Steelmaking iron is particularly dull; no inquiries or orders. All malleable users are protected. Only spasmodic purchases of low phosphorus or special irons in carloads or 100 tons are noted. The Mesta Machine Co. wants 75 tons of special analysis iron.

Inquiry Shows Improvement

Boston, Jan. 27.—Increased inquiry for second quarter delivery features the pig iron market at Boston. Prices are steady and sales continue fair although mostly in small lots. The future looks bright, as the rate of melt in the district gradually improves and confidence in price stability increases. A Massachusetts manufacturer took 200 tons of No. 2X eastern Pennsylvania iron (2.25 to 2.75 silicon) at $24.50, furnace, or $28.15 delivered. Foreign iron is selling in small lots at $25 to $26 c.i.f. Boston and also at about the same range in price c.i.f. Providence. Sales recently reported include several of 300 tons, one of 500 tons, and others bringing the week's total to 4000 to 5000 tons. Two Massachusetts foundries are in the market each for about 1000 tons.

Eastern Market Softer

New York, Jan. 27.—Efforts to sell pig iron for early shipment or for shipment over the first quarter have been more active and it has been difficult to find buyers as rapidly as the iron was offered. The recent strong tendency has given way to a somewhat softer condition. Quotations generally are unchanged, but where it is desired to sell tonnage, the holders in some instances are shading prices. For instance, the regular price on Buffalo foundry iron for both first and second quarter is $23 furnace, for 1.75 to 2.25 silicon; $23.50 for 2.25 to 2.75 and $24.50 for 2.75 to 3.25 silicon. Resale iron is being offered at 50 cents less than these prices. On eastern Pennsylvania iron the usual price is $24 base furnace, plus $1 silicon differential. However, sales have been made at $23.50 base furnace and there have been other irregularities, silicon differentials having been in some cases 50 cents and 75 cents for the 2.25 to 2.75 silicon grades. Another factor is the increased amount of foreign iron that is offered. Brokers are selling this foreign iron in a good many instances at substantially $1 less delivered than the competitive American price. European foundry ranging from 2.50 to 2.75 per cent silicon and normal in sulphur and phosphorus, is going at $24 to $24.50 duty paid tidewater. It is estimated that of approximately 15,000 tons of iron sold in this territory during the past week, one-third of this quantity, or 5000 tons, involved foreign iron. The largest single purchase was by the Burnham Boiler Corp., took 3000 tons for first and second quarter. The Worthington Pump & Machinery Corp. which was in the market for about 7500 tons for the second quarter, closed for part of this tonnage, but has not yet taken action on the remainder. Other consumers who recently inquired continue to defer action.

Small Demand at Buffalo

Buffalo, Jan. 27.—Pig iron demand shows little improvement. Inquiries total about 6000 tons, with nothing of more than 1000 tons in the list. Demand is largely for foundry iron. Foundry operation has not improved materially since the first of the year but production schedules for February may be on a higher scale. The Corry Radiator Works is on full production in its enlarged plant and some of the other large users of iron have increased output. Most users are fairly well covered for the immediate future and finding no sign of price concessions in the district are keeping out of the market. All Buffalo furnaces quote $23 on No. 2 foundry iron, $23.50 on No. 2X and $24.50 on No. 1X. These prices apply alike to first and second quarter business. Last week's sales total was below 10,000 tons. It is understood Wickwire will have a furnace in operation soon after April 1.

Market Is Quieter

Cleveland, Jan. 27.—Uncertainty in the coke situation seems to be having a retarding influence on pig iron sales. Some buyers are calling sellers' attention to the easier tendency in coke, as reason for waiting or asking for lower prices. Dealers point out that average prices of pig iron for the second quarter should be about $1.50 higher than for the first, based on recent advances in coke. They expect an increase of about 50 cents a ton in the price of ore. If present prices of pig iron cannot be maintained or advanced for the second quarter, they say their position will not be improved over the first quarter. However, not much tonnage is under negotiation and the market is quieter than a week ago. Prices are untested. Shipments are good, except for those to makers of motorcar parts. A Cleveland interest continues to quote $24, furnace, for local delivery and another has moved up to this price from $23.50. Lake furnaces are asking $23 to $23.50. A merchant interest with headquarters here is quoting $23, furnace, valley and elsewhere, and reports having sold 7000 tons in the week. The sales by all interests represented here total 20,000 tons. This includes one lot of 5000 tons and one of 2000 tons. Inquiries have dropped to about 3000 tons. A Cleveland furnace is asking $23 for basic iron, although no sales are reported for the week.

Melt Appears Larger

Chicago, Jan. 27.—From the production standpoint, the Chicago pig iron market is strong. Pressure for deliveries is undiminished, and the melt appears to be increasing. Inquiry is slightly better, but the spot market is somewhat disappointing. More interest is being displayed in the second quarter, but producers generally prefer to avoid commitments this far ahead. Furnaces believe second quarter costs will be higher than for the

first. Northern malleable and No. 2 foundry iron are unchanged at $24, furnace. Reports of less lack verification. It is more accurate to say the market has not advanced, than to say it has weakened. The southern market is stronger, with one seller asking $22, Birmingham. A Chicago district melter of foundry iron is inquiring for 1500 tons for second quarter. A western Michigan foundry has placed 500 tons. Increased inquiry from foundries on automotive work is expected. A Chicago basic user is expected to inquire for 10,000 to 15,000 tons shortly.

Fair Sales Are Made

Philadelphia, Jan. 27.—The total of pig iron sales is larger than apparent. They probably aggregated 15,000 tons or more in this district in the past week. An easier tone has developed. A price of $24, furnace, is maintained on eastern Pennsylvania No. 2 plain, but lower silicon differentials are being obtained. No. 2X now is $24.50 to $24.75, furnace. No. 1X is $25.25 to $25.50. A growing factor in competition is foreign iron, which now is bringing $24 to $24.50, duty paid tidewater, for 2.50 to 3 per cent silicon, with normal phosphorus and sulphur. This competition has a weakening effect on domestic No. 2X and No. 1X. Continental high phosphorus iron again is being offered plentifully. As previously reported, English low phosphorus iron continues obtainable at $26 to $26.50, duty paid tidewater. Sales of domestic low phosphorus involve only small lots at unchanged prices. Basic iron is featureless. Moderaee lots of Virginia iron are being sold at $24, base furnace, plus 50-cent silicon differentials.

Prices $21.75 to $23.

Cincinnati, Jan. 27.—Wide variation in prices quoted by sotuhern Ohio furnace interests appears to have retarded buying. Confusion in the market has resulted from the fact that a southern Ohio furnace interest will accept business for February and March shipment at $21.75, Ironton base, while the other furnace interests are asking $22 and $23 furnace. In view of the low quotation prevailing on northern iron, the product of the southern furnaces is not a factor in this market at $20 or $21, Birmingham base, which appears to be the range. Fundamental conditions in the Cincinnati iron market apparently are sound, many melters anticipating contract obligations. A majority of the foundries have bought sparingly for second quarter and with much foundry business coming out this source is likely to provide good business. Sales during the past week ranged from a carload lot to 1000 tons. The International Harvester Co. bought 1000 tons of malleable iron for its Springfield, O., plant for second quarter, while the H. P. Deuscher Foundry Co., Hamilton, O., is reported to have bought 500 tons of northern foundry iron and a like tonnage of the southern grade for shipment over a period of three months, beginning Feb. 1. The Worthington Pump & Machinery Corp. closed on its inquiry for 750 tons of northern foundry iron and 125 tons of bessemer iron for its Elmwood, O., plant for second quarter. Preparations are being made by the Norton Iron Works for blowing in its stack at Ashland, Ky., about March 1.

Small Users Now Buying

St. Louis, Jan. 27.—Fairly active buying in a small way, with continued pressure to ship contract quotas, are the outstanding features of the pig iron situation. Virtually all the principal users have covered through the first quarter, and some well into the second quarter, but numerous smaller interests still have iron to buy. The largest single sale reported was made by the leading local producer which involved 1200 tons of basic for prompt delivery to an East Side melter. Demand for prompt shipment is good, and rather varied as to analysis. Prices generally are strong, and offerings are moderate. A number of producers report that they are shipping tonnage slightly in excess of their current output.

Sales For Second Quarter

Birmingham, Ala., Jan. 26.—A few sales of pig iron for the second quarter have been made by southern furnaces on a $21 base for No. 2 foundry. The and other users are calling for steady delivery of pig iron, and the market is strong. Two blast furnaces being put in operation this month by the Tennessee Coal, Iron & Railroad Co., will be on basic iron, while the Sloss-Sheffield Steel & Iron Co.'s seventh furnace, to go into action within a week or two, will be put on foundry iron.

Prices Present and Past

Representative market figures yesterday, and for last month, three months ago and one year ago

	Jan. 28, 1925	Dec., 1924	Oct., 1924	Jan., 1924
PIG IRON				
Bessemer, valley, del., Pitts ..	$24.76	23.51	21.76	24.66
Basic, valley	22.00	20.75	19.00	21.40
Basic, eastern del., eastern Pa.	24.25	23.25	20.00	22.50
*No. 2 foundry, del. Pitts.	22.00	22.61	21.26	24.16
No. 2 foundry, Chicago	24.00	22.40	20.50	23.70
*Southern No. 2, Birmingham..	20.00	19.80	17.50	21.60
*Southern Ohio, No. 2, Ironton	22.00	21.80	20.00	22.90
**No. 2X, Virginia furnace	24.50	24.50	24.50	25.00
**No. 2X, eastern, del. Phila..	25.26	24.88	21.36	24.26
Malleable, valley	22.00	21.10	19.50	22.00
Malleable, Chicago	24.00	22.40	20.50	23.70
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del. Pittsburgh	24.26	22.01	20.76	23.56
Ferromanganese, del., Pitts....	119.79	109.79	104.79	113.79
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh	39.00	37.75	37.20	42.50
Sheet bars, open-hearth, Pitts....	39.00	37.75	37.20	42.50
Billets, bessemer, Pittsburgh....	38.00	35.60	36.60	40.00
Billets, open-hearth, Pittsburgh..	38.00	35.60	36.60	40.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.10	2.10	2.00	2.40
Steel bars, Chicago	2.20	2.10	2.00	2.50
Steel bars, Philadelphia	2.32	2.32	2.32	2.72
Iron bars, Philadelphia	2.28	2.42	2.32	2.57
Iron bars, Chicago mill	2.00	2.00	2.10	2.40

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

	Jan. 28, 1925	Dec. 1924	Oct., 1924	Jan., 1924
FINISHED MATERIAL (Continued)				
Beams, Pittsburgh	2.10	2.05	2.00	2.50
Beams, Philadelphia	2.32	2.32	2.12	2.72
Beams, Chicago	2.30	2.20	2.00	2.60
Tank plates, Pittsburgh	2.00	1.90	1.80	2.50
Tank plates, Philadelphia	2.32	2.22	1.92	2.72
Tank plates, Chicago	2.30	2.20	2.00	2.60
Sheets, blk., No. 28, Pittsburgh	3.50	3.50	3.40	3.75
Sheets, blue anl., No. 10, Pitts.	2.70	2.65	2.60	2.95
Sheets, galv., No. 28, Pittsburgh	4.75	4.65	4.60	4.95
Sheets, black, No. 28, Chicago..	3.75	3.75	3.65	4.10
Sheets, blue anl. No. 10, Chicago	2.85	2.85	2.85	3.35
Sheets, galv. No. 28, Chicago	4.90	4.90	4.75	5.20
Wire nails, Pittsburgh	2.85	2.80	2.75	3.00
Wire nails, Chicago	3.00	3.00	2.90	3.35
COKE				
Connellsville furnace, ovens	3.50	3.70	3.00	3.80
Connellsville foundry, ovens	4.50	4.60	4.00	4.35
OLD MATERIAL				
Heavy melting steel, Pittsburgh	21.50	21.00	18.40	21.10
Heavy melting steel, eastern Pa.	19.00	20.50	17.20	18.15
Heavy melting steel, Chicago ..	18.00	18.65	16.25	17.40
No. 1 wrought, eastern Pa.	21.50	20.10	18.75	20.10
No. 1 wrought, Chicago	18.00	18.75	15.95	17.50
Rails for rolling, Chicago	20.00	19.90	17.20	18.90

Composite Market Average

Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products Yesterday, One Week, One Month, Three Months, One Year and Ten Years Ago.

Jan. 28, 1925	Jan. 21, 1925	Dec., 1924	October, 1924	Jan., 1924	Jan., 1915
$41.00	$41.10	$40.21	$38.65	$43.26	$21.90

Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

Iron and Steel Prices

SCRAP PRICES, PAGE 374; WAREEOUSE, ORE, PAGE 370 NUTS, BOLTS AND RIVETS AND PIPE PRICES, PAGE 376

Pig Iron

Prices per gross ton

Bessemer, valley	$23.00 to 23.50
Bessemer, Pittsburgh	24.76 to 25.26
Basic, valley	22.00 to 22.50
Basic, Pittsburgh	23.76 to 24.26
Basic, Buffalo	22.50 to 23.00
Basic del., eastern Pa.	24.00 to 24.50
Malleable, valley	22.00 to 23.00
Malleable, Pittsburgh	23.76 to 24.76
Malleable, Cleveland, del	24.00 to 24.50
Malleable, Chicago	24.00
Malleable, Buffalo	23.00
Malleable, del., eastern Pa.	25.00 to 26.01

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern foundry	1.75 to 2.25
No. 2X Eas'n and Virginia	2.25 to 2.75
No. 1X Eastern	2.75 to 3.25
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern	1.75 to 2.25

No. 1X, eastern del., Phila.	26.26 to 26.63
No. 1X, Buffalo	24.50
No. 1 foundry, Chicago	25.00
No. 2 foundry, valley	22.00 to 23.00
No. 2 foundry, Buffalo	23.76 to 24.76
No. 2 foundry, Buffalo	23.00
No. 2 foundry, Chicago	24.00
No. 2 foundry, Granite City	25.00 to 25.50
No. 2 foundry, Ironton fur.	22.00 to 23.00
No. 2 foundry, Cleveland, del	24.00 to 24.50
No. 2 foundry, del., Phila.	24.76 to 25.13
No. 2 foundry, N. J., tidewater	25.39 to 25.76
No. 2X, eastern del., Phila.	25.26 to 26.88
No. 2X, eastern del., Phila.	26.14 to 26.49
No. 2X, eastern del., Boston	27.65
No. 2X, foundry, Buffalo fur.	23.50
No. 2X, Buffalo, del., Boston.	27.91 to 28.41
No. 2 southern, Birmingham	20.00 to 21.00
No. 2 southern, Cincinnati	24.05 to 25.05
No. 2 southern, Philadelphia	27.80 to 28.80
No. 2 southern, Chicago	26.01 to 27.01
No. 2 southern, Cleveland	26.01 to 27.01
No. 2 southern Boston (rail and water)	26.91 to 27.91
No. 2 southern, St. Louis	25.17 to 26.17
No. 2X, Virginia furnace	24.50 to 25.50
No. 2X, Virginia, Phila.	29.67 to 30.17
No. 2X, Virginia, Jersey City	30.04 to 30.54
No. 2X, Virginia, Boston	30.42 to 30.92
Gray forge, eastern Pa	24.00 to 25.00
Gray forge, val. del., Pitts.	24.26
Low phos., standard, valley	29.00 to 29.50
Low phos., standard, Phila.	29.79
Low phos., Lebanon, furnace	26.00
Low phos., English, Phila	26.76 to 27.26
Charcoal, Birmingham	30.00
Charcoal, Superior, Chicago	29.04

Silvery iron, Jackson county, Ohio, furnace, 7 to 8 per cent, $29.00; 8 to 9 per cent, $30.50; 9 to 10 per cent; $32.50; 10 to 11 per cent, $34.50; 11 to 12 per cent, $37.00; 12 per cent, $39.50.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 to 11 per cent, $39.50; 11 to 12 per cent, $42.00; 12 to 13 per cent, $44.50.

Ferroalloys

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	31.00 to 33.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, cents per pound contained	85.00 to 87.00
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, del.	11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.60 to 3.75
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00

†Duty paid.

Coke

Beehive, Ovens
Prices per net ton

Connellsville, furnace	3.50 to 4.50
Connellsville foundry	4.50 to 5.50
New river foundry	8.50 to 9.00
Wise county furnace	4.25 to 4.50
Wise county foundry	5.00 to 5.50
Alabama furnace	4.00 to 4.50
Alabama foundry	4.50 to 5.00

By-Product

Foundry, Newark, N. J., del.	$10.41
Foundry, Chicago, ovens	10.75
Foundry, New England, del.	11.50
Foundry, St. Louis	11.00
Foundry, Granite City, Ill.	9.00

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS
4 x 4-inch and larger

Pittsburgh, open hearth	$38.00 to 40.00
Pittsburgh, bessemer	37.00 to 38.00
Youngstown	38.00 to 40.00
Philadelphia	42.30 to 43.30
Chicago	37.00 to 38.00
Forging, Pittsburgh	45.00
Forging, Philadelphia	47.30 to 48.30

SHEET BARS

Pittsburgh and Youngstown	39.00 to 40.00

SLABS

Pittsburgh	38.00 to 40.00
Youngstown	38.00 to 38.50

WIRE RODS
¼-inch and finer

Pittsburgh	$48.00
Cleveland	48.00
Chicago	50.00 to 51.00

Standard extras, $2.50 per ton over ¼-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	2.00c to 2.10c
Universal skelp, Pittsburgh	2.00c to 2.10c
Sheared skelp, Pittsburgh	2.00c to 2.10c

Structural Shapes

Prices per pound

Pittsburgh	2.10c to 2.20c
Philadelphia	2.32c to 2.42c
New York	2.34c to 2.44c
Chicago	2.30c
Cleveland	2.29c to 2.39c
Birmingham	2.25c to 2.35c

Steel Plates

Pittsburgh	2.00c to 2.10c
Philadelphia	2.32c to 2.42c
New York	2.34c to 2.44c
Chicago	2.30c
Cleveland	2.19c
Birmingham	2.15c to 2.25c

Iron and Steel Bars

Pittsburgh, soft steel	2.10c to 2.20c
Pittsburgh, cold finishing	2.25c to 2.35c
Pittsburgh, forging quality	2.35c to 2.45c
Philadelphia, soft steel	2.32c to 2.42c
New York, soft steel	2.34c to 2.44c
Chicago, soft steel	2.20c
Cleveland, soft steel	2.29c to 2.39c
Birmingham, soft steel	2.25c to 2.30c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.10c
Chicago, rail steel	2.03c to 2.13c
Mill, rail steel	1.90c to 2.00c
Philadelphia, common iron	2.28c to 2.32c
Philadelphia, coon iron	2.34c
Chicago, common iron	2.00c to 2.15c

Hoops, Bands, Strip

Prices per pound f.o.b. mills

Hoops, Pittsburgh, under 3 in.	2.50c to 2.60c
Hoops, Pittsburgh, 20 gage, under 1 in.	2.75c to 2.90c
Bands, Pittsburgh	2.40c to 2.50c
Hot rolled strip steel, Pittsburgh stamping quality	2.40c
Cold rolled strip steel, hard coils 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	4.15c

Chicago and Worcester, Mass. $3 per ton higher.

Cold Finished Steel

Prices per pound

Cold finished steel bars, drawn or rolled Pittsburgh, Chicago, carloads	2.80c
Less carloads	3.05c
Steel shafting, turned and polished Pittsburgh, Chicago	2.80c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Rails, Track Material

Standard bessemer rails, mill	$41 00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	27.00 to 32.50
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45, mill	1.80c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.90c
Spikes, small railroad, 7/16-inch and smaller, Pittsburgh	3.20c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c
Track bolts, Pitts. standard	3.90c to 4.25c
Track bolts, Chicago	3.90c
Tie plates, Pittsburgh	2.35c to 2.50c
Tie plates, Chicago	2.35c

Wire Products

To Jobbers in Carloads
Prices per pound

F.o.b. Cleveland and Pittsburgh base	
Wire nails	2.85c
Galv'd nails, 1-inch and over	5.10c
Plain wire	2.60c
Annealed wire	2.75c
Galvanized wire No. 9 gage	3.20c
Barbed wire, painted	3.30c
Barbed wire galvanized	3.55c
Polished staples	3.30c
Galvanized staples	3.55c
Coated nails, count keg	2.25c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7 bars and 12-in. stays per 100 rods, f.o.b. Pittsburgh	$20.56

Joliet, DeKalb and Waukegan, Ill., $2 per ton over Cleveland-Pittsburgh base on products made there. Worcester, Mass., and Fairfield, Ala., $3 higher. Duluth $2 higher. Chicago delivered price $3 higher, Anderson, Ind., $1 higher.

Sheets

Prices per pound

SHEET MILL BLACK

No. 28, Pittsburgh base	3.50c to 3.60c
No. 28, Philadelphia, delivered	3.82c to 3.92c
No. 28, Gary, Indiana Harbor	3.70c to 3.80c
No. 28, Chicago, delivered	3.75c to 3.85c

TIN MILL, BLACK

No. 28, Pittsburgh base	3.60c
No. 28, Gary base	3.70c to 3.80c

GALVANIZED

No. 28, Pittsburgh, base	4.75c to 4.85c
No. 28, Philadelphia, delivered	4.92c to 5.07c
No. 28, Gary, Indiana Harbor	4.85c to 4.95c
No. 28, Chicago, delivered	4.90c to 5.00c

BLUE ANNEALED

No. 10, Pittsburgh base	2.70c
No. 10, Philadelphia, delivered	3.02c to 3.12c
No. 10, Gary, Indiana Harbor	2.80c to 2.90c
No. 10, Chicago, delivered	2.85c to 2.95c

AUTOMOBILE SHEETS

No. 22, Pittsburgh, base	4.75c

Tin Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$5.50

Gary, Ind. base 10 cents higher

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—f.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3½ to 3¾-inch	35

Chain, Piling, Cut Nails

Prices per pound

Chain, 1-in. proof coil, Pitts.	6.25c
Sheet piling base, Pittsburgh	2.05c to 2.15c
Cut nails, f.o.b. mills	2.90c

Hot Rolled Alloy Steels

Price per pound, Pittsburgh base

S. A. E. Series—	
2300 (3½ per cent nickel)	4.75c to 5.00c
3100 (nickel chromium)	3.65c to 3.75c
6100 (chrome vanadium)	4.50c to 4.75c
6100 (Chrome vanadium spring)	4.00c to 4.25c
9250 (Silico manganese spring)	3.50c to 3.60c

Billets—4 x 4 to 10 x 10, gross ton at net ton bar price; under 4 x 4 to 2½ x 2½-inch $5 higher. Chicago base $2 higher.

Scrap Demand Is Lacking

All Markets Feel Effect of Large Buying which Gave Consumers Reserves—Decline of 50 Cents in Many Grades as Offerings Press

SCRAP PRICES, PAGE 374

Chicago, Jan. 27.—Iron and steel scrap has suffered an even more acute reaction than last week and heavy melting steel is now down to a range of $18 to $18.50, or $2.50 below the recent peak. Reports that a large consumer is buying at $18 are not confirmed. Dealers are offering steel scrap fairly freely at $1 and some interests believe lower prices are yet to come. Consumers apparently share this belief as they are not buying. Foundries also are aloof.

Activity Subsides at Boston

Boston, Jan. 27.—While price strength continues in iron and steel scrap active buying has subsided and a lull in nearly all grades is now apparent. Heavy melting steel is still being bought moderately for shipment to eastern Pennsylvania at $14.50 to $15 shipping point. Several cars of stove plate have been sold to a Norwood, Mass., consumer at $14.50 delivered. Several hundred tons of No. 1 textile scrap were placed in Connecticut at $21 delivered. No. 1 machinery is freely offered at $20 delivered.

Further Decline Is Met

New York, Jan. 27.—The iron and steel scrap market has shown a further sagging tendency. During the past few days dealers have reduced prices on a number of grades, including heavy melting and No. 1 railroad steel. The leading eastern Pennsylvania consumer of the latter grade has reduced its price on railroad steel $1, and in the absence of any important consuming demand from other sources, dealers are offering lower buying prices to producers, reductions amounting to about 50 cents a ton.

Steel at Lower Level

Philadelphia, Jan. 27.—Probably 15,000 to 20,000 tons of heavy melting steel has been sold in this district the past week to two consumers. One paid $18 following previous purchases at $19, delivered. Another having a higher freight rate and more particular about the grade paid $19.75, delivered. Other business has been small and the present undertone is weak. Several grades are 50 cents to $1.50 lower. Supplies are slow to come out.

Pennsylvania railroad is offering 35,500 tons of assorted grades. Bids will be taken also by Feb. 4 on ten locomotives and tenders to be scrapped.

Little Demand at Buffalo

Buffalo, Jan. 27.—Little new demand for iron and steel scrap is current but dealers are in the market for heavy melting steel for Bethlehem and other contracts. There is an active demand for steel from this source with dealers paying up to $19.50 on purchases as low as $19, according to reports. The largest consumer of stove plate is out of the market after heavy purchases at an average of about $16.75 a ton.

Prices Show Weakness

Cleveland, Jan. 27.—Iron and steel scrap trading in this district continues light. Melters are taking only such tonnage as is due on contract and in consequence prices are weak. Heavy melting steel is down $1 to $20 to $20.50 from last week's quotation.

Consumer Buying Little

Cincinnati, Jan. 27.—Iron and steel scrap prices continue to sag as consumers refuse to buy. Practically all grades have been reduced 50 cents a ton. Some material is moving on old contracts, but it is of small consequence. Users are not interested in new tonnage as many are well covered into next month. This is particularly true of consumers of borings and turnings. Dealers are trading among themselves to a limited extent to cover contracts. Railroads continue to offer large lists, including those of the Big Four, Pennsylvania and Chesapeake & Ohio.

Less Hysteria at St. Louis

St. Louis, Jan. 26.—Iron and steel scrap market is irregular. On some grades prices hold fairly steady, while in others weakness has developed. Heavy melting steel yielded to the extent of 50 cents per ton, and there were minor cuts elsewhere. Consumers are buying only for current needs and enthusiasm among dealers has subsided. Considerable scrap is arriving but represents tonnages previously purchased, only limited fresh offerings appearing.

Yard stocks have been reduced somewhat during the past two or three weeks. Little is coming from the country, and railroads are selling less than heretofore. Generally the melt is holding up well. Buying of finished products is less active but order books are excellent, unfilled orders being much heavier than at this time last year.

Material for blast furnace use continues in good demand, but with a disposition on the part of users to resist present prices. Foundry grades are also being well taken, but there is less urgent demand for steel and steel specialties. Railroad offerings are moderate, including 5000 tons by the Chicago, Burlington & Quincy, 1500 tons by the Cotton Belt and 1700 tons by the Union Pacific. The Dodge Bros. Motor Co. offered 4000 tons.

Southern Market Strong

Birmingham, Ala., Jan. 26.—The southern iron and steel scrap market is strong, sales being made steadily. Heavy melting steel and steel rails were boosted 50 cents to $1 per ton the past week and other products are holding firm.

Sags Because of Inactivity

Pittsburgh, Jan. 27.—Reflecting the weakness prevailing in other districts iron and steel scrap has declined 50 cents to $1.50 per ton. Heavy melting steel heads the list, now being quoted at $21 to $21.50. While some sellers claim in-

(*Concluded on Page* 324)

Semifinished Is Easier

Sheet Bars Now Available To Customers of Some Valley Mills at $39—Billets Booked at $37—Scarcity Still Prevails at Pittsburgh

SEMIFINISHED STEEL PRICES, PAGE 315

Youngstown, O., Jan. 27.—With no tonnage of billets, sheet bars or slabs available from producers for the open market, trading practically is at a standstill. Consumers contracted for their requirements, mostly in the form of sheet bars, early in the quarter at $37 and producers find this tonnage in the aggregate together with that required for intermill operation practically takes up the slack in semifinished production. Specifications for sheet bars are being released in fairly good volume. Should regular customers of one producer find their tonnage covered by contract has been underestimated, they will have no difficulty in obtaining additional sheet bars, but the price will be $39. For the past few weeks quotations on this product in this district have been $40, but this week the price was lowered $1 a ton to $39.

Billet Sales Small

Philadelphia, Jan. 27.—Several billet sales were closed in the past week although the total was rather small. Some of this business was at $38, base Pittsburgh, for rerolling billets and $43 for forging. However, $37 base has not yet disappeared. Wire rods are unchanged at $48, Pittsburgh.

Sheet Bars $39 To $40

Buffalo, Jan. 27.—Demand for sheet bars is only fair, with prices steady within the range of $39 to $40 Pittsburgh. Billet prices are $1 lower, with light demand.

Open-Hearth Quotations Nominal

Pittsburgh, Jan. 27.—While open-hearth semifinished steel continues scarce and prices are nominal, it is understood bessemer still is available in several directions. Bessemer steel can be utilized in bars for tin plate rolling, and wherever possible it is being substituted for open hearth. Bessemer sheet bars are quoted at $39 and while one valley interest is reported to have extended some of its commitments on open hearth at $39 and others would be willing to do so if they had the steel, the usual market quotation is $40 on open-hearth sheet bars. They are difficult to locate however, for shipment during this quarter. The last sale of open-hearth sheet bars noted here involved a small tonnage at $40, f.o.b. Cleveland mill, the customer paying the freight from Cleveland to its plant in this district. Books are not yet opened for second quarter although many customers are inquiring for that period. A comparatively large tonnage of slabs, 3000 tons or more, was sold here last week at $38. Rerolling billets, 4 x 4-inch, command the same figure. Small billets are quoted at $39.50 to $40, some makers obtaining the full $2 differential. The last business on forging billets carried the $45 figure, which quotation is being considered for coming second quarter con-

tracts. Specifications on this quarter's commitments are coming along in good shape. Wire rods are moving freely on contracts although no new bookings have been noted lately. The market price is $48. Skelp still is quoted at 2.00c to 2.10c but is tending upward along with plates. No open market inquiry is noted.

Producer Expects Increase

Chicago, Jan. 27.—A producer of semi-finished steel looks for decided increases in prices and in buying, shortly. Most semifinished users have not bought all of their first quarter requirements, it is said. A maker of small billets claims to have refused business at $40. Sheet bars are reported strong at $40, Chicago.

Billets Sold at $37

Cleveland, Jan. 27.—Prices of semi-finished material are slightly easier, from indications of the past week. The fact so many producers are booked practically full offers little opportunity for a test. One valley mill previously holding sheet bars at $40 is understood to have reduced its price to $39, valley for either open hearth or bessemer quality. A few sales of billets, totaling about 1000 tons, have been closed in the last few days, around $37, Cleveland for 4 x 4-inch and $39 for the smaller.

A price of $41, Cleveland, was received by the local maker this week on small billets.

Tin Plate Orders

Sufficient for Five Months of Operations Needs Practically Covered

TIN PLATE PRICES, PAGE 315

Pittsburgh, Jan. 27.—Little or nothing is occuring to interfere with tin plate makers' high rate of operations and from the business in hand they are well committed for five months. Specifications are heavy although it is admitted that more could be taken care of. Some makers fear that a slight slowness in making up specifications on the part of can makers may result in hardship later on when a steel shortage and the usual hot weather labor shortage may hamper deliveries. Some local and nearby independent tin plate producers are operating 100 per cent and several individual mills of the American Sheet & Tin Plate Co. are operating full. The leading interest averages between 85 and 90 per cent. Medium size inquiries for tin plate develop abroad. Domestic needs are practically all under cover. The price is unchanged at $5.50 per base box of 100 pounds, f.o.b. Pittsburgh district mills.

Buys Casting Plant

Pittsburgh, Jan. 27.—B. D. Thomas, president, United Sales & Equipment Co., Bessemer building, has bought the plant of the Armstrong Steel Casting Co., Huntington, Ind., from W. W. Hawley, receiver, and it is reported will reorganize the company, assuming the name of the Thomas Electric Steel Corp. The price paid was not announced. It is planned to re-open the plant about March 1. Mr. Thomas will be president of the new concern.

More Coke Ovens Banked

Producers Are Reducing Distress Tonnages—Talk of Putting Wages Back to Former Level—Spot Minimum Is $3.50

COKE PRICES, PAGE 315

Pittsburgh, Jan. 27.—Further curtailment of beehive coke production by banking ovens is reducing offerings of distress tonnages and within the next two weeks they may disappear on this account. Yesterday spot tonnages of standard furnace coke were bought by brokers at $3.40. Consumers are paying a minimum of $3.50. The usual spot quotations are $3.75 to $4. Contract quotations are nominal at $4.50 to $5. Some producers have not yet decided what their second quarter quotation will be. Consumers are maintaining their attitude of indifference waiting for lower levels. Additional talk is heard about a backward revision of wage rates to the November rate, but this is more or less isolated. Several large producers unable to start shipments on contracts before the middle of February are banking ovens. It is understood the Adrian Furnace Co., Thomas Iron Co., Hokendauqua and Parryville furnaces, and one or two other eastern stacks, may buy second quarter fuel soon, providing the pig iron market improves. Demand for small lots of heating coke has improved, although smelters and refineries are not inquiring for large tonnages. Small lots are selling at $2.85 and $3. Other quotations range from $3 to $3.25. Some producers are not willing to quote below $3.75. Foundry coke is selling spasmodically in small lots at $4.50 upward. No contracts are being booked. Contract quotations are around $5. Premium brands command prices of $5.75 and $6.

Production of coke in the Connellsville region for the week ended Jan. 17 was 209,040 tons, compared with 206,240 tons the preceding week, according to the *Connellsville Courier*.

Eastern Market Easy

New York, Jan. 27.—An easy tone continues to be reflected in coke price here. Beehive foundry coke for spot shipment ranges from $4.75 to $5.25 Connellsville, with higher asked for some brands. Current business is slow. By-product foundry coke continues at $10.41 delivered at Newark and other northern New Jersey consuming points.

Prices Are Unchanged

Cincinnati, Jan. 27.—Aggregate sales of coke are good despite an absence of outstanding inquiries. Foundries are supplied for 30 days at least, but judging from the new volume of business flowing to that source, operations will be materially increased and as a result coke requirements will be much larger than heretofore. The Ashland By-Products Coke Co. has announced the price of its domestic coke will continue at $5, ovens, for walnut and egg and $4.50 for No. 2 nut, while the foundry grade will remain at $6.50, Connellsville for February shipment. A leading local by-product producer reports a slight gain in demand from melters. Neither the Indianapolis or Terre Haute producers are contemplating any price changes for the ensuing month. Demand for furnace coke continues quiet, although prospects are brighter, in view of the fact that preparations are being made to blow in two additional furnaces in this district.

Foundry Demand Active

St. Louis, Jan. 27.—A continued high rate of activity at foundries and machine shops is reflected in brisk demand for foundry coke. There are many requests to speed shipments of contract quotas, and a fair volume of fill-in orders. By-product manufacturers who are booking close to 100 per cent of this business, report shipments equal to current production, with some small drafts on their reserve stocks. Contracting by industrial users has been about completed, and shipment of that variety coke are in large volume. Offerings of eastern and southern coke have increased in volume, and a slight shading of prices is noted. Steam coal has advanced in price, and is moving briskly.

Demand For Coke Improves

Birmingham, Ala., Jan. 26.—Demand for coke in the southern territory has improved. Output is being absorbed, except that of the iron and steel companies' by-product plants. Some of the iron companies are not producing all the coke they need and have arranged with independent companies for a little tonnage regularly. Quotations do not show any indication of advancing in the near future. Prices continue at $4.50 to $5 per ton.

Plans New Pipe Mills

Pittsburgh, Jan. 27.—The Pittsburgh Steel Products Co., with plants at Monessen and Allenport, Washington county, Pennsylvania, will expend $1,000,000 on the construction of a pipe mill at its Allenport works, money for which is being derived from new financing this week. The company now makes tubing up to 6 inches diameter, but plans to construct a mill to make oil country pipe from 6 to 12 inches diameter. Considerable special machinery, cranes, etc., will be installed and some of the special equipment, it is understood will come from Germany. The company has 105 acres of land at Allenport and operates four pipe mills there. The new buildings will be constructed of steel sash and will have steel roofing. Bids for the new plant are being asked.

Plans Mill Expansion

Pittsburgh, Jan. 27.—The extension plans of the Central Tube Co., formed last fall and which provided for a new pipe mill at the plant at Economy, Pa., have been further developed and the concern has decided to erect a new furnace building there. A contract for 150 tons of steel was placed with the Jones & Laughlin Steel Corp. The company will act as its own contractor.

Alfred Nelson Metal Works, Inc., Brooklyn, N. Y., has reduced its capital from $30,000 to $20,000.

Bar Prices Are Advanced

Increase of $2 Per Ton in Effect for Prompt and Second Quarter—Business not Being Solicited—Specifications Exceed Shipments

BAR PRICES, PAGE 315

Chicago, Jan. 27.—Following the lead of the Inland Steel Co., the other large producer of soft steel bars here is expected to advance to 2.20c, Chicago. One interest estimates its bookings of bars at the $2 advance to be 16,000 tons, part from reinforcing bar warehouses. New business continues light in comparison with December, but specifications exceed production and deliveries are constantly receding. Bar mill capacity is being operated 100 per cent.

Several makers of rail steel bars claim to be on the level of 2.10c, mill, or 2.13c, Chicago, and 2.00c, mill, is said to be disappearing. New business continues slightly in excess of shipments.

Bar iron bookings tapered off somewhat last week but not sufficiently to affect operations. Quotations of 2.10c and 2.15c, Chicago, are more frequent but 2.00c still can be done on attractive business.

Deferred deliveries by Chicago mills are diverting some business to Pittsburgh. Several users unable to get fairly prompt delivery either at local mills or warehouses, have bought at Pittsburgh at a 2.44c, delivered Chicago, price.

Specifications Largest in Months

Philadelphia, Jan. 27.—Steel bar specifications with some mills were larger last week than in any similar time since the elections. New business is small largely because consumers are protected by contracts. Market levels are unchanged at 2.00c to 2.10c, Pittsburgh.

Specifications Again Active

Pittsburgh, Jan. 27.—Lack of merchant steel bar specifications during the first two weeks of the year has been superseded by an active period and consumers again are specifying. Practically all customers of several steel companies have filed specifications ahead of time and deliveries on popular sizes are several weeks deferred. One valley producer finds if its customers continue to specify at the present rate, it will be filled up through April. Some specifications coming in now involve up to several hundred tons although the majority are for 50 to 100 tons. The present price is 2.10c to 2.20c.

Refined iron bars recently were advanced $2 per ton to a 3.00c minimum, from 3.00c to 3.10c being quoted on the ordinary refined iron and up to 4.50c being named on double refined iron.

The Jones & Laughlin Steel Corp. today advanced steel bars $2 a ton to 2.20c, Pittsburgh.

Different Conditions Reported

Cleveland, Jan. 27.—A mixed condition is apparent in the Cleveland situation in merchant bars depending upon the seller. Some large interests report good specifications and a fair amount of new business. With these January incoming tonnages will be about equal to December. With other mills buyers are not taking out tonnage in accordance with expectations or their commitments which are heavy. As matters now stand, some tonnage not specified in January may be taken off the books at the end of the present month. Some inquiry for second quarter delivery is reported but this is not common and most makers are not anxious to name second quarter prices at this time. The action of one Mahoning valley maker this week in advancing prices for second quarter $2 a ton to 2.20c, Pittsburgh, has not been followed by other mills but is being considered.

Hoops and bands are stronger, the former ruling at 2.65c to 2.75c and the latter at 2.50c, Pittsburgh.

The Jones & Laughlin Steel Corp. today announced an advance of $2 a ton on bars for second quarter delivery making its price 2.20c, Pittsburgh.

Specifications Are Improved

Pittsburgh, Jan. 27.—The month did not start out well as far as specifications in cold-finished steel bars are concerned but the latter are growing better. For the past week the market has shown considerably more life. Representative producers here report there was more anticipatory buying for first quarter and more contracting than for any single quarter in several years, and specifications against these contracts now are being filed in earnest. Orders are more numerous and individually are larger so that the industry continues on a 75 per cent basis. Sellers are not yet ready to announce prices for second quarter although with merchant steel bars continuing to show strength it is assumed the second quarter level will be higher. The present market figure of 2.80c is firm and that may be the contract figure for second quarter since most first quarter contracts carry 2.70c.

Hoop Makers Well Sold

HOOP PRICES, PAGE 315

Pittsburgh, Jan. 27.—Hoop and band makers all are well committed on the narrow sizes, automobile parts makers and other stamping concerns having ordered heavily. Various consuming lines are actively furnishing specifications which with considerable new buying keeps capacity engaged at 80 per cent with some plants running full. Price spreads on hoops and bands necessarily are wide and on some heavy gages in the wider sizes a 2.50c minimum applies. From 2.50c to 2.60c is quoted on regular hoops, while in the narrow sizes 2.75c to 2.90c is the quoted spread although on some thinner gages of the extremely narrow hoops as high as 3.75c is quoted.

Bolt and Nut Users Are Specifying Well

NUT AND BOLT PRICES, PAGE 376

Pittsburgh, Jan. 27.—Specifications for bolts and nuts are coming in freely as new business develops. Operations continue 65 or 70 per cent of capacity. A decided improvement is noted over December. In rivets, the operating average is somewhat higher, at 75 to 80 per cent. While one or two rivet makers, including one located at Cleveland, still are willing to offer price concessions to 2.55c and even to 2.50c on extremely attractive orders, the price here is firm at 2.60c on structural rivets, with 70, 10 and 5 off on small rivets. The Pennsylvania railroad, some southern railroads, and car building shops are active. One of the Pennsylvania railroad orders included a carload of one size. Another maker obtained an order for 150 tons of assorted sizes.

Volume Not So Large

Cleveland, Jan. 27.—Little change is reported in the bolt and nut market. While the volume of business coming in is not as large as it has been in the recent past, orders still are fairly plentiful and makers are optimistic. Prices are firm, practically no shading of quoted discounts being reported.

Rivet demand is smaller due to the fact most consumers have covered their requirements for the quarter. Some spot business, however, has developed and prices are firm at 2.60c, Pittsburgh. The leading maker reports a car maker placed a fair tonnage during the past few days.

Production May Suffer

Chicago, Jan. 27.—New business in bolts and nuts must improve considerably if makers are to maintain the present rate of operation, which holds over from December. Some classes of users bought so heavily in the closing months of 1924 that they can not be expected to buy largely so early in 1925. Automobile makers continue cautious, although each week sees a slight enlargement of their specifications. Makers of bolts and nuts say there has been no cutting under 50, 10 and 10 off for large machine bolts and that the increase in the mill price of bars should be a stiffening factor.

Wire Is Irregular

Advances and Shading Appear in Various Districts—Nail Sales Gain

WIRE PRICES, PAGE 315

Chicago, Jan. 27.—Pittsburgh district manufacturers are reported to have quoted $2 a ton under the supposed level of 2.70c, base Joliet and Waukegan, on plain wire and compelled some western makers to meet this level. At the same time reports are current that the leading interest plans a $2 advance, but in view of the unsettled condition of the market an advance would probably have the effect of establishing the present levels, which are 2.70c base Joliet and Waukegan, on plain wire, and 2.95c, base Joliet and Waukegan, on wire nails.

Wire Sales Improve

Boston, Jan. 27.—Sales of wire and wire products show improvement. Nails are an exception and after two weeks unusual activity now are relatively quiet. Prices are unchanged.

Eastern Advance Nominal

New York, Jan. 27.—Recent advances of $2 per ton by certain wire and nail makers apparently have had no effect on the general market. Wire continues available at 2.60c base Pittsburgh or

equivalent and nails at 2.85c, base Pittsburgh or equivalent. Operations have increased somewhat at some mills and the average seems to be 75 to 80 per cent of capacity.

Nail Orders More Numerous

Pittsburgh, Jan. 27.—While plain wire orders are particularly heavy and fencing business is on the increase, nail orders are also becoming more numerous. Jobbers specifications during the last few days have been plentiful since many 60-day contracts expired during the closing days of January and buyers are endeavoring to obtain all they can on them. These probably will be renewed at the prevailing market levels, 2.60c on plain wire and 2.85c on wire nails. Higher levels are being considered on second quarter business.

Steel Corporation Shows Small Earning Gain

Earnings of the United States Steel Corp. gained slightly in the last quarter of 1924. The total was $30,762,231, after taxes and operating expenses, against $30,718,416 in the preceding three months. In the corresponding quarter of 1923 the earnings were $49,958,980. The corporation deducted for depreciation and sinking fund $1,000,000 more than it charged off for those purposes in the third quarter. As a result the deficit after all charges, including an extra dividend of ½ per cent or common stock was $937,509 against $122,102 in the quarter just preceding. The earnings in November were at the lowest ebb of the quarter, December showing a gain. The comparative income account follows:

	Fourth quarter 1924	‡Third quarter 1924	Fourth quarter 1923
October	$12,236,014	$11,096,288	$18,600,197
November	8,903,576	10,773,079	17,286,551
December	9,622,641	10,845,693	14,072,232
Total quarter earnings after deducting operating and maintenance expenses and estimtaed taxes	30,762,231	30,718,415	49,958,980
Depreciation and sinking fund	11,848,502	10,853,513	13,041,684
Net income	18,914,026	19,864,902	36,917,296
Interest and bond premiums	4,738,391	4,786,792	4,813,123
Balance	14,175,635	15,078,110	32,104,173
Balance of sundry receipts and charges	87,070	.....	235,189
Balance	14,262,705	.....	32,339,362
Preferred dividend	6,304,920	6,304,920	6,304,920
Common dividend	6,635,781	6,353,781	6,353,782
Extra dividend on common	2,541,512	2,541,512	.....
Surplus	**937,509	**122,102	19,680,660

*July, August and September in third quarter.
**Deficit.

Earnings in 1924 reached their lowest point in the third quarter. They were at their highest in the first. The total earnings for the year amounted to $152,837,130 against $179,640,900 in 1923. The balance of surplus for the year after extra dividends and sums expended or to be expended amounting in all to $22,541,512, was $4,234,092. The earnings by quarters follows:

	1924	1923
First quarter	$50,075,445	$34,780,069
Second quarter	41,381,039	47,858,181
Third quarter	30,718,415	47,053,680
Fourth quarter	30,762,231	49,948,980
Total	$152,837,130	$179,640,900

Larger Plate Tonnages Up

Demand from All Consumers Improves—Cars, Boats and Pipe Lines Placed—Independent Companies Increase Price $2

PLATE PRICES, PAGE 315

Philadelphia, Jan. 27.—Eastern plate mills have good specifications and continue to operate at 60 to 80 per cent. One maker is withdrawing prices under 2.10c, Pittsburgh, although 2.00c continues obtainable on carloads or larger lots. Improvement in demand from all industries is noted. This includes oil tanks, boilers, stills and skelp. Mills complain of high costs, and say the average price of plates now being shipped on old orders is about 1.75c, base Pittsburgh. The Newport News Shipbuilding & Dry Dock Co. booked a Clyde Line boat to replace the burned MOHAWK, requiring several thousand tons.

The Lukens Steel Co. has issued a new extra card, which eliminates the former complicated method of computing cutting extras and extras for sketches. It replaces them with flat extras per 100 pounds. These simplified extras are based on a study of cutting and sketch costs during the past five years.

Seeks Higher Price

New York, Jan. 27.—An eastern platemaker again is making an effort to obtain higher prices for its product and now is quoting a minimum of 2.10c base Pittsburgh. It is too early to tell what prices will develop from the other mills, as a result of this advance by a competitor. In the meantime, plates continue available at 2.00c, base Pittsburgh, or equivalent. Most of the business continues to come in as specifications on first quarter contracts. Indications are that contracts placed for the first quarter were larger than in some time. The eastern mills now are producing at 60 to 80 per cent of capacity.

The Beaver Engineering Co. was low bidder today on 3065 tons of 72-inch riveted pipe for the board of water supply. These are for the first section. Bids will be opened Feb. 3 on the second section, the Williamsburg conduit, involving 2886 tons.

Obtains Boat Tonnage

Cleveland, Jan. 27.—A Pittsburgh independent will furnish about 5000 tons of steel, mostly plates, for another 600-foot lake ore freighter placed this week by the Columbia Steamship Co., an Oglebay, Norton & Co. interest with the Great Lakes Engineering Works, Detroit. Fabricators in this territory are interested in two riveted water lines requiring about 7000 tons on which the department of water supply, New York City is taking bids. Some other fair sized tonnages including one lot for oil stills, are pending but new miscellaneous plate tonnage is light. The market on tank steel appears to be at a minimum of 2.10c, Cleveland or 2.00c, Pittsburgh but on special qualities such as fire brick and boiler steel this base has been shaded by nearby mills. An inquiry is current for 700 tons of steel for car repairs for the Baltimore & Ohio railroad.

The Jones & Laughlin Steel Corp. announced an advance today of $2 a ton on steel plates for second quarter delivery to a basis of 2.10c, Pittsburgh.

Inquiries Exceedingly Diversified

Pittsburgh, Jan. 27.—Inquiries for plates for many uses are furnishing the chief encouragement to fabricators here. In the main, the steel mills keep busy on backlogs and with first quarter specifications ahead of time and inquiries appearing at this early date for second quarter, they are encouraged by the outlook. Recent car business has developed considerable plate work, one interest having on its books an order from a railroad requiring the use of 25,000 tons of steel in the form of plates, bars, sheets, wheels, etc. Two other inquiries from railroads for cars involve 10,000 tons similarly distributed. Spasmodic inquiries for boilers, barges, individual oil tanks, etc., are fairly numerous.

An advance of $2 a ton on plates for second quarter delivery at 2.10c, Pittsburgh was announced today by the Jones & Laughlin Steel Corp.

Car Builders Provide Business

Chicago, Jan. 27.—Tank fabricators have been light buyers of plates in the past week, their total probably not exceeding 3000 to 3500 tons. Railroad freight car builders have been fair buyers of plates but they have been restricted by the slowness of the western railroads to close their car inquiries. The Inland Steel Co. is quoting 2.30c, Chicago, on plates, which is an advance of $2 a ton, and while the Illinois Steel Co. has not made any official announcement it is understood that 2.30c is also its quotation.

Will Hays, Inc., Detroit, has been awarded the contract for the construction of 16 miles of watermains by the city of St. Louis, involving 12,000 to 15,000 tons of riveted steel pipe. It is reported the steel will be fabricated by Jas. McNeil & Bro. Co.

PLATE CONTRACTS PLACED

5000 tons for lake ore freighter for the Columbia Steamship Co. placed with Great Lakes Engineering Works, Detroit; steel to be supplied by a Pittsburgh independent.

250 tons, standpipe for City of Seattle, to Seattle Boiler Works.

125 tons, 37,000-barrel tank for Associated Oil Co., at Monterey, Calif., to Western Pipe & Steel Co.

Several thousand tons, steamer for Clyde Line, to Newport News Shipbuilding & Dry Dock Co.

PLATE CONTRACTS PENDING

7000 tons for riveted water lines, New York City, bids being taken by New York department of water supply.

6000 tons, Estuary tube, Oakland, Calif.; bids to be taken by March 23.

3000 tons, 72-inch riveted pipe line, first section of Williamsburg conduit for board of water and supply, New York; Beaver Engineering Co., low bidder.

2886 tons, second section, 72-inch riveted pipe line, Williamsburg conduit, for board of water and supply, New York; bids in Feb. 3.

2750 tons, one 6,000,000-cubic foot gas holder, Louisville, Ky.; bids closed Jan. 26.

1500 tons, 18 storage tanks for Pan American Petroleum Corp., Oakland, Calif.; bids soon.

850 tons, pipe line for Port Angeles, Wash.; bids in.

Tonnage unstated, 3,000,000-cubic foot gas holder, Portland Gas & Coke Co., Portland, Oreg.; pending.

Concrete Bars Still Dull

New York, Pittsburgh and Pacific Coast Active—Heavy Roadwork Projects Beginning To Be Figured—Prices Advanced in Some Districts

REINFORCING BAR PRICES, PAGE 315

New York, Jan. 27.—More action has developed in the placing of concrete reinforcing bar tonnage in this territory. Awards reported here aggregate about 2000 tons. This involves the more important lots. In addition, a good many small tonnages have been placed. New work aggregating at least 10,000 tons is up for early action. The most important development of the past week is the awarding to the Turner Construction Co. of the general contract for new buildings for the Western Electric Co. at Kearny, N. J., involving about 1000 tons.

More Activity at Boston

Boston, Jan. 27.—Concrete reinforcing bars are more active here, with 1500 tons for Harvard university buildings as the largest immediate inquiry. Prices are firmer.

Inquiry Rate Shows Improvement

Pittsburgh, Jan. 27.—Inquiries for reinforcing concrete bars show marked improvement since late last year and early this year. Not much is being closed up but considerable work is pending. Bids were opened last week on the remaining 1000 to 1500 tons required for the completion of the athletic stadium, University of Pittsburgh. No lettings have been made on Pennsylvania state highway commission's new road projects, bids on which were opened last week. Concrete bar prices are unchanged at 2.10c mill, 2.30c Youngstown warehouse, and 2.35c to 2.40c, Pittsburgh warehouse.

Inquiries Show Upturn

Cleveland, Jan. 27.—Concrete reinforcing bar inquiries have shown a marked increase, but sales continue to drag along with miscellaneous orders of 10 to 50 tons. Several good sized projects are being figured but action is indefinite. New billet steel bars are being sold at 2.29c, Cleveland, or 2.10c, Pittsburgh, with some interests seeking to get 2.39c, Cleveland or 2.20c, Pittsburgh. Stock bars are firm at 2.45c to 2.55c, Pittsburgh, with 2.40c, an occasional quotation on attractive work. Rail steel bars are untested at 1.90c to 2.00c, mill, with little tonnage moving.

Larger Tonnages Becoming Active

Cincinnati, Jan. 27. Small lots continue to rule in the reinforcing bar market here, but some fair sized business lately has come before the local interests. A large amount of bars for Ohio and Kentucky road work is in prospect and projects involving more than 100 tons may be placed shortly. The 2.10c base Pittsburgh price is fairly well maintained on mill shipments, although lower is being done on attractive tonnages.

Price Advance Is Impending

Chicago, Jan. 27.—While 2.60c, Chicago warehouse, still is quoted on carload lots of reinforcing bars an advance to 2.70c is planned by the warehouses in case the mill price of steel bars holds at 2.20c. This advance would be in keeping with the program of bar sellers to maintain a spread of $10 a ton over the mill price. Awards continue few but the threat of a rise may drive in business. The 3300 tons of bars for the South Water Street Market Trust project, for which the McLennan Construction Co., 360 North Michigan avenue, has the general contract, may be placed at the end of this week. Probably 2000 tons of small work is pending.

CONCRETE CONTRACTS PLACED

Awards this week	**4,580 tons**
Awards last week	**3,543 tons**
Awards two weeks ago	**4,565 tons**

800 tons, Southwestern Bell Telephone Co. building, St. Louis, to Laclede Steel Co.

670 tons, D. M. Read store, Bridgeport, Conn., to Kalman Steel Co. General contractor Pardy Construction Co., Bridgeport.

600 tons, new plant for Lilly Hardware & Paint Co., Louisville, Ky., to Kalman Steel Co.

400 tons, G. M. Maltz Co. warehouse, Long Island City, N. Y., 370 tons to Franklin Steel Works and 30 tons to Kalman Steel Co. General contractor, R. W. Smith Construction Co., New York.

400 tons, cement plant at Sandts Eddy, Pa., for Public Service Production Co., Newark, N. J., to Faitoute Iron & Steel Co.

250 tons, addition Bethesda hospital, Cincinnati, to Pollak Steel Co.

250 tons, Alamo school, San Francisco, to Badt-Falk Co.

200 tons, Cheltenham school, Philadelphia, to Concrete Steel Co.

200 tons, Kinzie building, Chicago, to Olney J. Dean & Co. David Saul Klafter, 64 West Randolph street, Chicago, architect.

200 tons, Jersey City Printing Co. building, Jersey City, N. J., to McClintic-Marshall Co., general contractor, John W. Ferguson Co., Paterson, N. J.

140 tons, Groton warehouse, Cincinnati, to Bourne-Fuller Co.

125 tons, manufacturing plant for the Jersey Ice Cream Co., Lynn, Mass., to Kalman Steel Co. General contract to J. J. Prindiville Co. Framingham, Mass.

125 tons, O'Conner hall, Convent Station, N. J., to E. T. Edwards, Columbia, Pa.

120 tons, Tower theater, Chicago, to Olney J. Dean & Co. Fridstein & Co., 111 West Washington street, Chicago, architect.

100 tons, wall at state penitentiary, Ossinning, N. Y., to Concrete Steel Co. General contractor Michael Delfino, Ossinning.

Tonnage unstated, Woodstock college, Baltimore, to Dietrich Bros.

CONCRETE CONTRACTS PENDING

4700 tons, Estuary tube, Oakland, Calif.; bids to be taken March 23.

2000 tons, Anaconda Copper Mining Co., work at Miami, Ariz.; pending.

1625 tons, Pennsylvania state road work, 65 miles, bids on which were opened at Harrisburg Jan. 24; awards to be made this week.

1500 tons, buildings for Harvard university, Cambridge, Mass.; pending.

1000 to 1500 tons, University of Pittsburgh athletic stadium; bids opened by Stone & Webster, Inc., engineers, Jan. 22; award to be made this week.

1000 tons, Western Electric Co. buildings at Kearny, N. J.; general contract awarded Turner Construction Co.

950 tons, Smith Bros. warehouse, Columbus; action expected this week.

600 tons, garage for Jordan Marsh, Boston; bids in.

500 tons, office building, Broadway near Tenth street, Los Angeles; bids being received.

500 tons, warehouse, Standard Sanitary Mfg. Co., Pittsburgh; bids in.

400 to 600 tons, Carquinez Straits bridge, San Francisco; bids in.

300 tons, apartment building, Boston; contemplated.

300 tons, warehouse Standard Sanitary Mfg. Co., Indianapolis, Ind.; bids being taken.

300 tons, Elks club, Oakland, Calif.; bids in.

276 tons, Sellwood bridge, Portland, Oreg.; Gelpin Construction Co. general contractor; steel not yet placed.

250 tons, Roxana Petroleum Co., St. Louis; pending.

250 tons, May Co. garage, Cleveland; pending.

250 tons, additional seating capacity at Forbes Field baseball park, Pittsburgh, bids being taken; general contract let to J. H. Fetterman.

250 tons, school at Eureka, Calif.; bids open Feb. 3.

235 tons, medical building, Eighth and Francisco streets, Los Angeles; bids being received.

225 tons, loft building, Seventh and Los Angeles streets, Los Angeles; bids being received.

175 tons, Zellerbach Paper Co. building, San Francisco; bids being received.

130 tons, Bancroft school, Wilmington, Del., pending.

100 tons, Children's hospital building, Pittsburgh; bids close for second time on Feb. 1.

100 tons, garage building, C. C. Gerber, Fourth avenue, Pittsburgh; bids being taken.

Tonnage unstated, 8-story apartment building at Hinman avenue and Davis street, Evanston, Ill., for Victor Carlson, Hotel Orrington, Evanston; pending.

Tonnage unstated, 8-story apartment hotel for Country Club Apartment Corp., Chicago. Plans by Hall, Lawrence, Rippel & Ratcliffe, 123 West Madison street, Chicago.

Demand for Pipe

By Jobbers and Heavier Oil Country Trade Stimulates Market

PIPE PRICES, PAGE 315 AND 376

Pittsburgh, Jan. 27.—Increased demands on the part of pipe jobbers everywhere, together with an influx of inquiries and new orders from the oil territories where crude oil prices lately were advanced, serves further to encourage the pipe producers. These continue able to operate at 75 or 80 per cent of capacity and daily orders are in lots of one to five carloads. Better prices on crude oil in Pennsylvania, the Mid-Continent and Texas fields and elsewhere presages further drilling, and jobbers are busy accumulating stocks. No formal line pipe inquiries have been received here but several are in the making. Standard full weight merchant pipe continues to lead the list in popular demand for tubular products.

New York Market Featureless

New York, Jan. 26.—Cast iron pipe trading here is featureless. No large tonnages are noted, and buying is dull. The shops are in a good position, particularly for this season, and with prices on pig iron and coke continuing strong, quotations on pipe are unchanged.

Bid Around $42 Base

Chicago, Jan. 27.—The United States Cast Iron Pipe & Foundry Co., was low bidder for about 4000 tons of cast iron pipe for Chicago with a bid of a few cents under $42, Birmingham, or $50.20, Chicago, for the larger sizes. Toledo opens bids, Jan. 30, in 1200 tons of pipe. Bookings are heavier than a year ago and the business is better distributed.

Sales in South Healthy

Birmingham, Ala., Jan. 26.—Southern manufacturers of cast iron pressure pipe have been booking orders for the past several weeks in great quantity. Books now are well covered on the larger sizes. One of the larger pressure pipe companies states that marked activity has taken place in the pipe market during the past 30 days. Large tonnage has been taken by customers in all sections of the country and books have

been closed for the first quarter for some of the more popular sizes. An incidental feature of the buying movement has been the exceptional demand for the larger sizes of pipe from 12 to 24 inches as compared to the smaller sizes under 12 inches in diameter. For 6-inch and over pipe $40 is stated as the base price.

CAST IRON PIPE PLACED

4000 tons, Chicago, to United States Cast Iron Pipe & Foundry Co.
1162 tons, 6 to 12-inch class B, C, and D pipe for Glendale, Calif., to Pacific Pipe & Supply Co. who will furnish French pipe.
600 tons, cast iron pipe for Spokane, Wash., to National Cast Iron Pipe Co.
206 tons, Everett Pulp & Paper Co., Lowell, Wash.; to French interests.
150 tons, Appleton, Wis., to National Cast Iron Pipe Co.

CAST IRON PIPE PENDING

3060 tons, 54-inch water pipe for Milwaukee; United States Cast Iron Pipe & Foundry Co. low bidder at $46.50 a ton.
1200 tons, Toledo, O.; bids in.
1013 tons, 18 and 16-inch class B and C pipe for Los Angeles, Spec. 743-A. bids in.
500 tons, Kenosha, Wis.; bids in Jan. 30.
410 tons, 4 to 16-inch class B pipe for San Diego, Calif.; bids in.
215 tons, 4 to 8-inch pipe for Sacramento, Calif., United States Cast Iron Pipe & Foundry Co., low bidder.
200 tons, 4, 6 and 8-inch class C pipe for Pasadena, Calif.; bids being received.
68,000 feet of small size metal pipe, Metzger, Oreg.; bids will be opened Feb. 9 for proposed water system. H. L. Gilbert, Couch building, Portland, is consulting engineer.
37,100 feet, wood and steel pipe, 20 and 24-inch, Port Angeles, Wash.; bids in.
22,250 lineal feet of cast iron pipe, from 4 to 12 inches, Kalispell, Mont.; bids being taken.
20,000 feet, 2 to 12-inch pipe for Wapato, Wash.; bids in.
13,200 feet 4 to 24-inch pipe for Tacoma, Wash. bids in.
Tonnage unstated, 4000 feet of mains, with fittings, Plover, Iowa; bids Feb. 4. C. E. Watts, city clerk.

Strip Specifying Large

STRIP PRICES, PAGE 315

Pittsburgh, Jan. 27.—From widely scattered consumers in different lines of manufacture, strip steel specifications, both hot and cold-rolled, are better for the last half of the month than for the first half. Some consumers find they underestimated requirements and are placing new orders, or adding to contracts. These sales are at the spot market which now is firmer than in many weeks past at 4.15c on cold and a 2.40c minimum on hot. Operations are unchanged at about 75 per cent of capacity in this territory.

Expect Advance of $2

Chicago, Jan. 27—Although not yet announced, quotations on hot-rolled strip steel are expected to be advanced $2 a ton in keeping with the recent rise in finished steel. This would make a quotation of 2.70c, Chicago, on 10 inches and over and 2.60c on sizes under 10 inches.

Made Trade Commissioner

Washington, Jan. 27.—William E. Humphrey, former Republican congressman from Washington, has been appointed a member of the federal trade commission succeeding Nelson B. Gaskill, who was the recess appointee but was opposed by Senator Edge and others.

Automotive Maintenance Machinery Co., Chicago, has increased its capital stock from $25,000 to $100,000.

Quote Higher Sheet Prices

Leading Independent Maker in West, and a Valley Interest Advance
All Grades $2—Specifications Sustain High Operating Rates

SHEET PRICES, PAGE 315

Youngstown, O., Jan. 27.—Cross currents in the price structure, which became apparent a week ago, culminated in the Trumbull Steel Co. advancing prices on all grades $2 a ton. This maker now is quoting 2.80c on blue annealed, 3.70c on black and 4.85c on galvanized. Other mills in the valley have delayed taking similar action. Makers of common sheets are in a different position at present than makers of high grade sheets, but in the final analyses the condition in both cases hinges on what producers prize, namely, specifications. Mills rolling common sheets have plenty of contracts on their books but specifications are not being released as they should be. District mills are operating at 87 per cent or capacity. Despite the high rate of operations various sheet makers solicit business. High grade producers have business entered on their books but not of the volume anticipated a month ago. Specifications also are lagging. One of the bright spots in the market is that practically no consumer is carrying tonnages in stock. Any increase in demand for steel sheet commodities, should be reflected therefore in actual specifications. Meanwhile, the larger sheetmakers are quoting 2.70c on blue annealed, 3.60c on black and and 4.75c on galvanized and full finished grades. In some districts prices of 3.50c on black and from 4.60 to 4.70c on galvanized still are ecountered. In some cases these prices apply on production tonnage and in other instances on stock or shopworn material. Certain makers feel obliged to meet competitive quotations to retain the customer; others are showing no disposition to drop their quotation below full market prices.

Advances Blue Annealed

Philadelphia, Jan. 27.—One eastern maker today advanced the price of blue annealed sheets $2, making the minimum 2.80c, base Pittsburgh. However, the 2.70c price has not yet disappeared. The statistical position of blue annealed sheets is good. Demand is sufficient to maintain production nearly full. Black and galvanized are not in such good demand. Makers need additional specifications. Black sheets are 3.50c to 3.60c; galvanized 4.60c to 4.75c. Current business is mainly of specifications on contracts. New orders are small.

Less Demand Noted

Buffalo, Jan. 27.—Sheet demand has tapered off some-what in the last ten days. Operation continues at 85 per cent of capacity with heavy deliveries on old orders. Prices are 3.60c and 4.75c, Buffalo mill base respectively for black and galvanized.

New Business Lags

Pittsburgh, Jan. 27.—New business in sheets continues to lag. but specifications are numerous. For one large producer hot mill specifications average 7000 tons daily last week, which amounts practically to its rated capacity. Galvanized sheet business is heavy, heavier in fact than some want it to be on the present high cost of spelter. Additional cars placed by the Baltimore & Ohio railroad has created considerable galvanized sheet business for roofs. Some independent makers already are talking about a $2 advance in galvanized sheets but one or two have quoted 4.70c for prompt acceptance on a limited tonnage recently. This low figure, however, now has disappeared and the market is quoted at 4.75c to 4.85c. A few black sheetmakers continue to deviate from the 3.60c price and still are quoting 3.50c. One or two have indicated they are advancing $2 per ton, but this is taking them to the 3.60c level maintained by the American Sheet & Tin Plate Co. Blue annealed sheets are firm at 2.70c. Some additional attractive car business placed by one or two roads recently has sent further blue annealed sheet tonnages to large mills here. Full finished automobile sheets are unchanged at 4.75c although some large automobile interests report ability to close at lower figures. Sheet mill operations are averaging slightly above 85 per cent and an increasing amount of talk is heard about higher prices for second quarter due to the high cost of open-hearth sheet bars.

Chicago Maker Raises Prices

Chicago, Jan. 27.—The Inland Steel Co. has advanced all of its sheet prices for second quarter $2 above the first quarter schedule. Its new delivered Chicago prices are: Blue annealed 2.95c; black 3.85c; galvanized 5.00c; Western delivered prices figure back as follows: Blue annealed 2.90c, Indiana Harbor; black 3.80c; galvanized 4.95c. Even including this advance, the Chicago delivered prices are $5.80 to $7.80 per ton below last January. Chicago district sheet mills are working at capacity. Order books as a whole are in the best condition in eight months.

Tube Plant Starting

Chicago, Jan. 27.—Another factor has entered the western pipe market with the beginning of operations by Clayton W. Mark & Co., which has installed pipe-making equipment in the former Symington munitions plant here. Prompt delivery is being made on black pipe and deliveries on galvanized will begin in a week. The Wisconsin Steel Co. is the Mark company's source of steel supply. Most of the business taken so far by this new interest is in Wisconsin. While some shading appears to have been done recently in the western market, the Mark company claims to be adhering to the differential or $4 a ton over Pittsburgh-Lorain.

Philadelphia Imports Drop

Philadelphia, Jan. 27.—Imports at this port during the week ending Jan. 24 included the following: 1013 tons of pig iron from British India; 525 tons of iron ore from Germany; 43 tons of scrap steel from England; 41 tons of steel bars from Sweden and 20 tons of steel bars from Luxemburg.

Shape Awards Rebound

New York Bridge With 7500 Tons and Pennsylvania Railroad Bridge with 8000 Tons Feature Contracts—Prices Continue To Stiffen

STRUCTURAL SHAPE PRICES, PAGE 315

New York, Jan. 27.—Structural buying for private enterprises during January has not been up to the volume of last month. Municipal work has been good. A feature o the past week was the award of 7500 tons for the municipal Roosevelt bridge over Flushing bay to the McClintic-Marshall Co. About 8300 tons of subway work is likely to be awarded within the next few days. General contractors' bids on one section, involving 3300 tons were opened yesterday, and on another section, requiring 5000 tons they will be opened Jan. 29. Shapes are steady around the equivalent of 2.10c, Pittsburgh.

Figures just compiled by George E. J. Pister of Hay Foundry & Iron Works, shows that commercial projects in the metropolitan district during 1924 involved a total of 540,000 tons of structural steel, against 450,000 tons for 1923. This tonnage does not include bridges, piers, subways, etc., referring purely to building construction.

Boston Prices Firmer

Boston, Jan. 27.—Several eastern mills have announced that shape and plate prices will advance Feb. 1. Buying for stock shows an improvement. Contracts let during the week also show a better total than the previous week.

Mills Over-Rolling Books

Philadelphia, Jan. 27.—Structural projects now are somewhat more plentiful, owing to the approach of the building season. Current indications promise considerable activity this year. Plain material orders are small, largely because consumers generally are able to specify against contracts. In many cases contracts cover January only, so that new business ought to begin to show an increase after Feb. 1. Mills are rolling faster than specifications and orders and they are beginning to be in need of some tonnage if schedules are to be maintained. Plain material prices range from 2.00c to 2.10c, Pittsburgh.

Business Well Sustained

Buffalo, Jan. 27. Shape business has been fairly well sustained, the price holding firm at 2.365c, Buffao. Fabricators have been busy on old orders with enough new business coming in although in small lots, to keep operation at substantial rates. Some good sized lots are to be placed soon.

8000-Ton Job Let

Pittsburgh, Jan. 27.—Formal announcement of the award of the Pennsylvania railroad bridge at Steubenville, O., involving 8000 tons, just made to the American Bridge Co., featured the shape market last week. Numerous projects still are afloat. One of the largest is the Pittsburgh Steel Products Co.'s new plant at Allenport, Pa., which was listed in IRON TRADE REVIEW contracts pending last week, involving 2000 tons. Numerous small tonnages are up. Fabricating shops need work but steel mills all are busy. The latter already are receiving inquiries for second quarter and report that some specifications on this quarter's business are ahead of time. The price is firm at 2.10c, although successful bids on jobs would indicate a lower raw material price.

Effective today the Jones & Laughlin Steel Corp. announced an advance on shapes for second quarter delivery of $2 a ton to 2.20c, Pittsburgh.

Market Continues Lethargic

Cleveland, Jan. 27.—Despite betterment in other districts, the local structural shape market continues dull. No large tonnages have been placed in weeks. Several large projects are being figured, but few are near placement. Plain material prices generally continue at 2.29c Cleveland or 2.10c, Pittsburgh, although the Jones & Laughlin Steel Corp. today advanced its price for second quarter business to 2.20c, Pittsburgh. Fabricated prices continue firm.

Prices Stabilized at 2.10c

Cincinnati, Jan. 27.—Most structural shape fabricators in this vicinity report a collection of small orders all involving amounts below 100 tons each. Plain material prices are well stabilized at 2.10c, Pittsburgh.

Chicago Market Now at 2.30c

Chicago, Jan. 27.—The market on shapes is now considered to be 2.30c, Chicago, following the announcement of the $2 advance by the Inland Steel Co. last week. Much less tonnage is said to be protected at the former level of 2.20c than 2.10c or below when the market was advanced to 2.30c. The small fabricating shops are said to be specifying heavily against their contracts. Much work is pending but awards have been fairly light, a seasonal condition at this time.

STRUCTURAL CONTRACTS PLACED

Building awards this week..... 34,541 tons
Building awards last week ..... 42,636 tons
Building awards two weeks ago.... 50,313 tons

8000 tons, Pennsylvania railroad bridge, Steubenville, O., to the American Bridge Co.

7500 tons, municipal bridge over Flushing bay, New York, to the McClintic-Marshall Co.; the Arthur McMullen Co., 50 Church street, general contractor.

3000 tons, addition to Furniture Mart, Chicago, to the Duffin Iron Works, Wells Bros. Construction Co., 53 West Jackson boulevard, Chicago, general contractor.

1900 tons, Women's club, San Francisco, to Dyer Bros. Golden West Iron Works.

1628 tons, grand stand for Los Angeles baseball park, to Llewellyn Iron Works.

1200 tons, academy of medicine, New York, to be erected by the Taylor-Fichter Steel Construction Co., as previously noted; steel to be fabricated by the Bethlehem Steel Corp.

1080 tons, Eagle's temple, Ballard, Wash., to Minneapolis Steel & Machinery Co.

750 tons, Pharmaceutical building, Indianapolis, to Insley Mfg. Co.

750 tons, Bulletin building, San Francisco, to Schrader's Iron Works.

600 tons, car repair shop for the Lackawanna railroad, Buffalo, to the Kellogg Structural Steel Co.

600 tons, memorial building for the University of Maine, Orono, Me., to the Boston Bridge Works.

600 tons, building for C. A. Dunham Co., 230 East Ohio street, Chicago, to the Hansell-Elcock Co.

600 tons, office building for E. & G. Development Corp., 41-47 Maiden Lane, New York, to Levering & Garrigues Co.

500 tons, New York Edison Co. substation, Thirty-sixth street, New York, to Levering & Garrigues Co.

466 tons, Palace theater, Gary, Ind., for the Palace Building Co. to American Bridge Co.

450 tons, apartment in Rowland park, Baltimore, to local fabricator.

450 tons, county office building, Elizabeth, N. J., to unnamed fabricator.

400 tons, school No. 116, New York, to the Harris Structural Steel Co.

370 tons, including McCrory's store building, Youngstown, O. (275 tons), and miscellaneous smaller jobs involving 100 tons, to the W. N. Kratzer Co.

360 tons, public school No. 81, New York, to the Lehigh Structural Steel Co.

360 tons, Amusement building, Santa Monica, Calif., to Baker Iron Works.

335 tons, Hylebos Creek bridge, Tacoma, Wash.; to Puget Sound Iron & Steel Co.

320 tons, apartment for the 111 East Seventy-fifth Street Corp., New York, to the Lehigh Structural Steel Co.

300 tons, bridge for the Bangor & Aroostook railroad at Grindstone, Me., to unnamed fabricator.

300 tons telephone exchange building, Astoria, L. I., N. Y., to Hedden Iron Construction Co.

300 tons, bridge No. 1 over Chartiers creek, through W. S. Rae, general contractor, Pittsburgh, to the McClintic-Marshall Co.

250 tons, telephone building, Pacific Telephone & Telegraph Co., Burlingame, Calif., to Ralston Iron Works.

250 tons, bank and office building for Drummond Miller Co., Lorain, O., to Jones & Laughlin Steel Corp.

220 tons, theater building, Boston, let to New England Structural Co. General contract to J. J. Powers.

220 tons, Cheltenham school, Philadelphia, to New York Shipbuilding Co.

200 tons, New York Edison Co. substation, Sixty-fourth street, New York, to Levering & Garrigues Co.

200 tons, New York Edison Co. substation, Eighty-fourth street, New York, to Hedden Iron Construction Co.

200 tons, theater building at Youngstown, O., through Mellon-Stuart Co., general contractor, to the McClintic-Marshall Co.

200 tons, building at Cumberland, Md., to the McClintic-Marshall Co.

197 tons, bridge at Shreveport, La., for the Vicksburg, Shreveport & Pacific railroad, to American Bridge Co.

160 tons, Pacific Gas & Electric Co., station J, to California Steel Co.

150 tons, Columbus avenue and Seventy-fourth street building, New York, to Taylor-Fichter Steel Consruction Co.

125 tons, United States post office garage and service building, Philadelphia, to New York Shipbuilding Co.

125 tons, high school, Norwood, Mass., to New England Structural Co. General contract to James A. Hyatt.

115 tons, Southern California Edison Co., Big Creek, Calif., to California Steel Co.

110 tons, Southern Glass Co., to California Steel Co.

100 tons, G. N. Barker Mfg. Co., Springfield, Mass., addition to plant, to Bancroft-Jones Co.

100 tons, steel pier repairs at Atlantic City, N. J., to New York Shipbuliding Co.

STRUCTURAL CONTRACTS PENDING

17,000 tons, Carquinez Straits bridge, San Francisco.; bids will be taken this month.

3600 tons, building for the Massachusetts Mutual Life Insurance Co., Springfield, Mass.; bids closed.

3300 tons, first scetion of Nicholas avenue subway, New York; Heyman & Goodman, Jersey City, N. J., low on general contract.

2300 tons, Elk's club house, Boston; bids in.

2000 tons, new plant for Pittsburgh Steel Products Co., Allenport, Pa.; bids being taken.

1500 tons, Catholic high school, Fiftieth street and Lexington avenue, New York; bids asked. Robert J. Reilly, 50 East Forty-first street, architect.

1250 tons, addition to baseball pavilion, Forbes' field, Pittsburgh; J. H. Fetterman, general contractor; bids being taken.

1000 tons, Citizens Mortgage building, Los Angeles; bids in.

800 tons, telephone building, Fresno, Calif.; bids being received.

700 tons, garage building for C. C. Gerber,

Fourth avenue, Pittsburgh; bids being taken.
600 tons, bridge at Chicago on which Great Lakes Dredge & Dock Co., 104 South Michigan avenue, Chicago, is taking bids.
600 tons, Waverly Hills hospital, Louisville, Ky.; George H. Rommel, general contractor.
600 tons, nurses' home, Mercy hospital, Pittsburgh; bids asked for Feb. 1.
600 tons, state highway bridge, Beaufort, S. C.; bids closed.
500 tons, Children's hospital, Pittsburgh; previous bids too high, new bids asked for Feb. 1.
450 to 500 tons, police station, Cleveland; bids in Jan. 28.
400 tons, Meridian street bridge, Puyallup, Wash.; bids Feb. 4.
350 tons, building for Demmler Bros., Ross street, Pittsburgh; bids to be asked.
325 tons, church of the Holy Sacrament, Greensburg, Pa.; bids being taken.
300 tons, Presbyterian church, Grove City, Pa.; bids being taken.
300 tons, apartment, Sixty-eighth street and Madison avenue, New York; Arthur Ware, 1170 Broadway, architect.
256 tons, bridge over San Diego river, at Old Town, Calif.; bids in.
250 tons, additional story to building of the American Bank Note Co., Bronx, New York; bids asked. Oscar P. Cadmus, 157 East Forty-fourth street, architect.
250 tons, Sacred Heart parochial school, New York; pending. Thomas Dunn, 37 West Fifty-seventh street, architect.
250 tons, subway work at Broadway and 173rd street, New York; bids asked.
250 tons, high school, Newtonville, Mass.; bids being taken.
231 tons, apartment house, Boston; bids in.
200 tons, Hotel Chelsea, Atlantic City, N. J.; general contract awarded F. V. Warren Co., Philadelphia.
200 tons, St. Simons Stock parochial school, New York; bids asked.
200 tons, electric light plant, Martin's Ferry, O.; general contract awarded the Carl Shinp Co., Martins Ferry.
170 tons, Jones & Laughlin Steel Corp. warehouse at Memphis, Tenn.; Austin Co., Cleveland, engineer and builder.
100 tons, Lincoln Trust Co., Jersey City, N. J.; pending.
Tonnage unstated, 19-story addition to Y. M. C. A. hotel, 822 South Wabash avenue, Chicago. Plans by Berlin & Swern, 19 South LaSalle street, Chicago.
Tonnage unstated, work for Anaconda Copper Mining Co., at Miami, Ariz.; pending.

Shoenberger Horseshoe Plant Is Sold

The horseshoe plant of the American Steel & Wire Co.'s Shoenberger works, Pittsburgh, has been sold to the Phoenix Horseshoe Co., Chicago, which will continue the manufacture of the Juniata brand of horseshoes, as the product of the Shoenberger works has been known for many years. Announcement to this effect by Frank Baackes, vice president and general sales agent of the American company, clears up reports pertaining to the works that have been heard for several days. The horseshoe plant will not be moved to Cleveland by the American company, as rumored, but will be continued in operation at the Shoenberger works for the present by the new owners.

Horseshoes are the only finished product of the Shoenberger works, the manufacture of bar iron, sheet iron boiler plate and cut nails having been discontinued some time ago. The plate mills were dismantled following the war. The blast furnaces and steel plant have been idle for almost a year. The Shoenberger works were founded 100 years ago as described in an article in IRON TRADE REVIEW, Aug. 21, 1924. The horseshoe plant has annual capacity for 22,500 tons of shoes and 1500 tons of toe calks.

The Phoenix company plans to continue the horseshoe business as at present. It has plants at Joliet, Poughkeepsie and Cincinnati. The latter plant is being enlarged.

Award Large Rail Tonnage

Pennsylvania Closes on 100,000 Tons for 1925 Requirements—Inquiries for Cars Are Slow—Burlington Awards 10,000 Tons Accessories

RAILROAD TRACK MATERIAL PRICES, PAGE 315

Chicago, Jan. 27.—Of the 100,000 tons of rails placed by the Pennsylvania railroad, 14,000 tons have come to the Illinois Steel Co. and 8000 tons to the Inland Steel Co. Other rail business placed in the past few days, chiefly with the leading interest here, includes 4200 tons by the Monon, 3200 tons by the Elgin, Joliet & Eastern, 4500 tons by the Burlington, 3700 tons by the Nickel Plate, 2200 tons by the Chicago & Western Indiana, 1200 tons by the Minneapolis & St. Louis, 1000 tons each by the Clover Leaf and the Baltimore & Ohio, and 500 tons by the American Frog & Switch Co. The Pennsylvania is reported to have placed 35,000 tons with the Carnegie Steel Co. and about 33,000 tons with the Bethlehem Steel Co. The Burlington is expected to place 3500 tons additional with the Inland company.

The Burlington has divided 10,000 tons of spikes and bolts, angle bars and tie plates among the Colorado Fuel & Iron Co., Inland and Illinois companies. The other railroad, including the Pennsylvania, either have placed track fastenings in proportion to their rail orders or are about to do so.

Car builders have been good buyers of steel in the past few days, having placed in excess of 50,000 tons with local makers, but pending inquiries for cars continue slow to close.

Railroads Buy At Boston

Boston, Jan. 27.—Railroads have entered the market for sizeable lots of miscellaneous supplies during the week. The Central Vermont railroad placed an order for about $30,000 worth of frog and switch material. Stone & Webster Corp. bought approximately 1000 tons of rails. The Boston Elevated railway purchased 600 tons and other roads have been heavy buyers of tie plates and bolts and nuts.

Car Outlook Not Promising

New York, Jan. 26.—Car buying is light with the immediate outlook in this district none too promising. The New York Central, previously reported as contemplating several thousand cars, will confine its present purchases to the 1000 cars noted as placed in a recent issue, according to current advices. Included in locomotive inquiry are 10 switch engines for the Chicago, Rock Island & Pacific, and three Pacific type locomotives for the Rutland railroad, this latter inquiry being issued through the New York Central.

Awards include three locomotives for the Ararangua, Cia Santa Cathatina Carbonifera De Brazil and one switch engine for the Chicago, West Pullman & Southern, both contracts going to the Baldwin Locomotive Works. The Chesapeake & Ohio has awarded a contract to the American Locomotive Co. for the building of 48 locomotive boilers and fire boxes. Baldwin Locomotive Works also booked four mountain type locomotives for the Grand Trunk & Western lines.

The Pennsylvania railroad has placed 100,000 tons of rails for 1925 delivery. The Bethlehem Steel Co. booked 45,000 tons, the Carnegie Steel Co., 35,000 tons, Illinois Steel Co. 14,000 tons and Inland Steel Co., 6000 tons. The Pennsylvania states that it still has on order 56,000 tons of rails from 1924, thus allowing 156,000 tons for the 1925 program.

Light and Heavy Grades Contrast

Pittsburgh, Jan. 27.—The light rail market continues to offer a decided contrast to the heavy or standard rail business. In the latter, large orders are on the books and makers are operating full. In the light rail market a large order is a rarity, single carloads still ruling and a price of 1.80c applying.

Track accessory buying continues to be piecemeal in character, small filling-in tonnages prevailing. Specifications are coming in right along and some of these contracts are running well into the second quarter. Not much new demand is encountered although occasional small inquiries appear. In standard track bolts prices run from 3.90c to 4.25c and while some producers ask no differential for small track bolts, one maker here quotes 5.00c. Demand for the latter is in keeping with light rail demand. Other track accessory prices are unchanged on the quoted bases.

Rail Division Announced

Cleveland, Jan. 27.—Division of the 21,500 tons of rails placed by the Nickel Plate system has been announced. The Steel corporation mills will obtain slightly over 50 per cent of this tonnage, and the remainder will be divided equally between the Bethlehem and the Inland Steel companies. Many of the rails for the Nickel Plate proper will be of 110-pound weight, the heaviest ever purchased by this road. Track accessories for these rails are yet to be placed. The Wheeling & Lake Erie has closed for 2000 tons of rails with Steel corporation mills.

Track Bolts and Spikes Up

Chicago, Jan. 27.—Chicago warehouses have advanced prices on track bolts and spikes $2 a ton. The new price on bolts now is 4.55c, and on spikes, 3.55c.

CAR ORDERS PLACED

Detroit, Toledo & Ironton, 65 hopper cars, to unnamed carbuilder.
New York Central, 29 suburban car bodies, to the Standard Steel Car Co.
Northern Pacific, 14 express refrigerator car underframes, to Siems-Stembel Co.

CAR ORDERS PENDING

Missouri Pacific, 2250 wooden gondolas and 250 wooden box cars; bids asked.
National Plate Glass Co., 35 high side gondolas; pending.

Niagara Motor Gasket Co., North Tonawanda, N. Y., has altered its capitalization from 1000 to 3000 shares $10 par value preferred and 5000 to 3000 shares $10 par value common stock.

Good Demand Noted

For Naphtha and Toluol—Sulphate Sold For Export Prices Steady

New York, Jan. 27.—Quotations on coal tar products are unchanged. Solvent naphtha and toluol, in good demand, are quoted respectively at 25 cents in tanks and 35 cents in drums, and at 26 cents in tanks and 31 cents in drums. Some sellers of the toluol are out of the market on nearby shipments. Benzol is in fairly good supply with the market on the pure grade holding at 25 cents, works, in tanks and 30 cents in drums, on 90 per cent, 23 cents in tanks and 28 cents in drums. Commercial xylol is quoted at 26 cents in tanks and 31 cents in drums.

Export buying of sulphate of ammonia is featured by some small lots for the West Indies. Demand from the Far East is at a standstill. Prices on ammonia for export account are holding nominally at $2.90 to $3, port, in double bags. The domestic market is featured by small scattered lots, which are being placed at around $2.65 to $2.70, works.

Buying of naphthalene is noted at around 5½ cents, works, for flakes and 6½ cents for balls in carload lots. Trading in phenol is dull. The market is unchanged at 25 cents, works, for futures and 27 cents local warehouse for spot shipment.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots	*Spot	Contract
Pure benzol	$0.25	Nominal
Toluol	0.26	Nominal
Solvent naphtha	0.26	Nominal
Commercial xylol	0.26	Nominal
Per Pound at Producers' Plants		
Phenol	0.27	$0.25
Naphthalene flakes	0.05½	0.05½
Naphthalene balls	0.06½	0.06½
Per 100 Pounds at Producers' Plants		
Sulphate of ammonia	2.65	...

*Spot distillates are subject to shading.

Idleness at Schenectady

Unemployment has reached an acute condition at Schenectady, N. Y., where at least 2500 men are out of work and the number may reach 5000. It is stated that there is actual suffering in countless cases. There is a good deal of idleness among employes of the General Electric Co., and the American Locomotive Co., who were forced to lay off many men. The General Electric Co. has been seeking to alleviate the situation by part-time operation, but with the exception of the radio department, there is no division of the great plant where there is a demand for help.

Chicago Operation Gains

Chicago, Jan. 27.—Steel ingot operations in the Chicago district are now about 98 per cent, or as high as operating conditions will permit. With specifications coming in at a rate exceeding production no lessening of pace appears in sight. Another blast furnace has been blown in at Gary and if another stack goes in at South Works of the Illinois Steel Co. this week, as expected, all of the South Chicago and the Gary stacks will be active. At today's rate, all but three of the 34 steel works stacks in this district are active.

Valley Operations Less Than Week Ago

Youngstown, O., Jan. 27.—Independent steel works operation this week is slightly lower than a week ago due to a slight slackening of demand for certain steel products. Forty-one of the 52 independent open-hearths are being charged or 79 per cent of capacity. A week ago approximately 81 per cent was active. The Youngstown Sheet & Tube Co. is operating 18 open hearths, the Republic Iron & Steel Co. 11, and the Sharon Steel Hoop Co. and the Trumbull Steel Co. six each. Sheet mill activity remains unchanged with 87 per cent of capacity under power. Youngstown Sheet & Tube Co. is operating 25 sheet mills, Republic Iron & Steel Co. 16, Trumbull Steel Co. 15, Newton Steel Co. 14, the Thomas Sheet Steel Co. 11, Sharon Steel Hoop Co. nine, the Falcon Steel Co. and the Mahoning Valley Steel Co. eight each and the Waddell Steel Co. four.

Miscellaneous operation includes six pipe mills and five finishing mills at the Republic Iron & Steel Co.; nine pipe, two merchant and one plate mill at the Youngstown Sheet & Tube Co.; 29 tin mills at the Trumbull Steel Co.; and four hot strip mills at the Sharon Steel Hoop Co.

Pittsburgh Activity Still at High Rate

Pittsburgh, Jan. 27.—Operating rates of the steel companies in this territory continue to reflect the large demand for shipments. The Carnegie Steel Co. is on a 92 per cent basis and expects to attain 95 per cent before the week is out. The Bethlehem Steel Corp. at Johnstown is operating all of its open hearths and the Jones & Laughlin Steel Corp. here is likewise averaging above 90 per cent, as is the Wheeling Steel Corp., and other large independents. When the Carnegie Steel Co. reaches 95 per cent it will be up to the peak record of March, 1924. Orders and specifications last week exceeded shipments and apparently nothing is interfering with the receipt of the former. The Carnegie company has 48 furnaces out of 59 blowing and plans blowing in two additional stacks at an early date. The Jones & Laughlin Steel Corp. has 11 out of 12 active.

The Clairton by-product coke plant of the Carnegie Steel Co. is operating 100 per cent with all 18 batteries of coke ovens in use.

Steel Castings Output Jumps in December

Washington, Jan. 27.—December bookings of steel castings, totaling 96,164 tons, was the largest monthly aggregate of 1924, excepting only March, which totaled 100,514 tons, according to reports to the department of commerce from manufacturers representing over two-thirds of the commercial castings capacity of the United States. December bookings were at 95.8 per cent of shop capacity, compared with 73.9 per cent in November. Totals for 1924 fell far below those of the preceding year, amounting to 772,840 tons, compared ith 894,780 tons in 1923.

The following table shows the bookings of commercial steel castings for the entire year of 1924, with comparisons of yearly totals from 1913:

	Total net tons	Per cent capacity	Railway specialties net tons	Miscellaneous net tons
1922 totals	812,741	69.6	404,682	408,059
1923 totals	894,780	74.6	386,939	507,841
1923 mo. av.	74,565	74.05	32,245	42,320
1924 totals	772,840	64.1	388,357	384,483
1924 mo. av.	64,403	64.1	32,363	32,040
1924				
January	51,406	51.2	19,572	31,834
February	73,138	72.8	35,474	37,664
March	100,514	100.1	59,778	40,736
April	68,119	67.8	33,151	34,968
May	56,801	56.6	28,064	28,737
June	48,718	48.5	26,170	22,548
July	38,191	38.0	16,244	21,947
August	36,363	36.2	14,532	21,831
September	62,509	62.3	29,567	32,942
October	66,697	66.4	31,130	35,567
November	74,220	73.9	41,343	32,877
December	96,164	95.8	53,332	42,832

BOOKINGS

Year	Total capacity	Net tons Total	per cent of capacity
1913	956,541	605,592	63.3
1914	961,436	458,238	47.7
1915	961,436	676,144	70.3
1916	998,076	1,061,399	106.3
1917	1,063,642	895,388	84.2
1918	1,104,443	1,133,910	102.7
1919	1,147,368	435,066	37.9
1920	1,162,800	793,305	68.2
1921	1,162,800	287,674	24.7
1922	.....	812,741	69.6
1923	.....	894,780	74.6
1924	.....	772,840	64.1

	Railroad specialties	Per cent of capacity	Miscellaneous	Per cent of capacity
1913	284,908	63.0	320,684	63.6
1914	213,954	47.3	244,285	48.0
1915	299,820	66.3	376,324	73.9
1916	555,378	122.8	506,021	92.7
1917	311,304	67.7	584,084	96.7
1918	487,211	106.0	646,699	100.3
1919	116,791	25.4	318,275	46.3
1920	318,226	69.2	475,079	67.6
1921	114,888	25.0	172,786	24.6
1922	404,682	84.7	408,059	59.1
1923	386,939	77.0	507,841	72.8
1924	388,357	75.3	384,483	55.8

Scrap Demand Is Lacking

(*Concluded from Page* 316)

ability to obtain even $20.50, others report sales late yesterday to two or three nearby points involving a few thousand tons at $21.50. In the main, consumers are staying out of the market although with continued high operating rates it is expected that this policy cannot obtain long.

Mill Scale Price Up

Philadelphia, Jan. 27.—Mill cinder and scale contracts for the first half now are all placed in this territory. Cinder is being sold at $3.25 to $3.75, delivered eastern Pennsylvania furnaces, which is substantially unchanged from the level named in July, 1924. The scale price is $5.75 to $6.50, delivered eastern Pennsylvania furnaces, which is about a 50-cent advance from the last half levels.

Fluorspar Sales Small

New York, Jan. 27.—Foreign fluorspar continues to be sold at $17.50 to $18 per net ton, duty paid tidewater, dependent on quality. This range substantially applies to the 85 and 5 per cent grade. Sales are rather small, although much tonnage is being moved on old orders.

Nonferrous Metal Markets

Prices of the Week

	Copper			Spot		Lead				
	Electro delivered	Lake delivered	Casting refinery	Tint, N. Y. Straits	New York Lead	St. Louis East	St. Louis Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
Jan. 21	14.87½	15.12½	14.25	56.37½	10.00	9.75	7.62½	27.00	16.87½	31.00
Jan. 22	14.87½	15.12½	14.25	56.62½	10.00	9.75	7.62½	27.00	16.75	31.00
Jan. 23	14.87½	15.12½	14.25	57.50	10.00	9.75	7.62½	27.00	16.75	31.00
Jan. 26	15.00	15.12½	14.37½	57.75	10.00	9.75	7.65	27.00	16.75	31.00
Jan. 27	15.00	15.12½	14.37½	57.25	10.00	9.75	7.65	27.00	16.75	31.00

NEW YORK, Jan. 27.—The metal markets have been passing through a period of speculative liquidation the past two weeks and are only now beginning to show signs of renewed activity and strength.

The break began abroad, with selling for account of dealers, some of whom were over-extended in rubber, tea and other commodities, as well as "paper" metal. London prices broke sharply with the result that American consumers in alarm withdrew from the market almost entirely and there has been a small volume of buying in most lines during the period of weakness. Tin has been an exception, as American consumers have adhered to a policy of buying tin on reactions. The reaction in this case was severe, amounting to £20 in London and fully 4 cents a pound here from the previous high.

As time passed, and studies and investigation of the situation showed no change had taken place in the economic situation and no developments of political importance has taken place abroad, it was realized that the reaction in the world's markets was caused by specific and technical conditions and not by any change in the outlook.

Copper—Some copper was sold a week ago as low as 14.75c, Connecticut, by second hands, though large producers have not gone below 15.00c at any time. Custom smelters sold a little tonnage down to 14.87½c, Connecticut, for early delivery, but the volume was not large. The soft spot in the world market has been London, where for a time resale copper was obtainable at less than American producers asked from their customers in territory adjoining their refineries. This has been absorbed and the markets again are on an even keel, with metal obtainable through the second quarter at 15.00c, Connecticut, and 15.12½c, Middle West.

Copper wire—Reflecting the easier tone of electrolytic copper, wire mills have shaded their wire price about ⅛ cent so that it has been possible to buy attractive tonnages of bare wire at the inside figure of 16.75c, base, mill. Similarly, weatherproof wire is quoted 18.75c to 19.00c. Business has been light, but mills are busy on old contracts.

Rolled products—Much the position obtains in brass and copper rolled products as in wire. The leading interests have made no further changes in published base prices.

Zinc—Prime western zinc prices broke sharply a week ago, from 7.87½c to 7.67½c, East St. Louis, following

Speculative Reaction Appears To Have Run Course—Buying Light

the London market downward. The sympathetic movement was due to arbitrage activities by dealers who could buy in London and resell here the contracts previously made for export zinc from America to England. Zinc ore prices also dropped sharply, with 20,000 tons sold in Joplin last week at $52.50 to $53.50 a ton.

Lead—The premium for lead in the open market disappeared this week. Steady declines in London brought our market into a position where it was much more attractive than Europe for lead originating in Mexican ores treated in bond in this country. The American Smelting & Refining Co. reduced its quotation $10 a ton or ½ cent a pound, to 10.00c, New York, while the open market in a week's time dropped $20 a ton, from 11c to 10c, New York. Middle western price dropped to 9.75c, East St. Louis.

Tin—Following the sharp reaction in tin here and in London, American consumers bought tin briskly, both early deliveries and shipments. This buying extended firmness in the London market, and prices for several days showed recovery. Straits tin, which sold recently at 56.50c as against the previous high of 60.50c, advanced to 58.00c.

Antimony—Spot antimony has sold at 16.50c to 16.75c, duty paid. Demand is light but supplies are small.

Aluminum—The aluminum situation is unchanged, with prices at the same level as over practically the entire last year, 27.00c for 98 to 99 per cent and 28.00c for 99 per cent.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.62½
Copper, hot rolled	23.00
Zinc, ga. 9 to 18 (plates ½c less)	11.00
Lead, full sheets (cut ¼c more)	14.00
Aluminum, bright, 0 to 35 gage	37.50 to 92.00
SEAMLESS TUBES	
High brass	24.25
Copper	25.25
RODS	
High brass, round, ⅝ to 2½-inch	17.62½
Naval brass	20.12½
WIRE	
Copper	16.87½ to 17.00
High brass	20.12½

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
New York	9.50
Chicago	9.50
Cleveland	10.00
HEAVY YELLOW BRASS	
New York	7.50
Chicago	8.25
Cleveland	8.00 to 8.25
ZINC	
New York	4.50 to 5.00
Chicago, dross	3.00
Cleveland	4.25
HEAVY COPPER AND WIRE	
New York	12.25
Chicago	12.25
Cleveland	12.50
RED BRASS TURNINGS	
New York	8.50
Chicago	9.25
Cleveland	9.50
YELLOW BRASS TUBING	
Cleveland	8.50
NO. 1 BRASS ROD TURNINGS	
New York	8.25
Chicago	8.50
Cleveland	8.75
LIGHT COPPER	
New York	10.25
Chicago	10.50
Cleveland	11.00
LIGHT BRASS	
Chicago	7.25
Clippings, Chicago	10.25
ALUMINUM	
Borings, Cleveland	12.50
Old sheet, Cleveland	18.25
Clippings, Cleveland	22.00

Secondary Metals

Remelt aluminum No. 12	22.50 to 23.50
Brass ingot 85-5-5-5	13.00 to 13.25

Refractories Gain

Production, Shipments and New Business Show Increase for December

Substantial increases in production, shipments and net new business, particularly the latter, are noted in fire clay and silica brick in December. December production of fire clay brick, according to data compiled by the Refractory Manufacturers' association, increased 4,076,075 brick over November; shipments 4,411,976, and net new business 8,314,302 brick. In connection with silica brick, the increase in production, shipments and net new business in December over the preceding month is 1,435,999 brick, 1,238,371 and 3,073,889 brick, respectively.

In explanation of the apparent great difference between the large stocks on hand Dec. 31 in the above table and the unfilled orders as of the same date, it is stated that large quantities of the brick included in the figure for stocks on hand are special shapes made up in advance for regular customers. They are not "free stock" to be applied against new orders. The actual free stock of 9-inch straights on Dec. 31 in fire clay amounted to 66,233,857 brick and in silica 4,282,000 brick.

Speedier Action

By Federal Trade Commission Sought By Amending Bill

Washington, Jan. 27.—The bill to amend the federal trade commission act, which has been introduced simultaneously in the senate and house by Senator James W. Wadsworth, of New York, and Representative Arthur B. Williams, of Michigan, follows a course in setting forth reforms in the manner of issuing complaints against firms and procedure in taking testimony similar to that outlined by Commissioner Nelson B. Gaskill in his report to congress. The trade commission declined to include the latter in its regular annual report. Commissioner Gaskill during the past year or more has suggested several changes in the manner of procedure of the commission in dealing with cases affecting business and industry.

The bill introduced in congress has been prepared by attorneys who have had a wide experience and practice before the federal trade commission and who represent important business enterprises.

"This measure was enacted by congress in the first instance as an instrument of constructive and helpful service to American business, to be applied in pursuance of a policy and procedure that would deal justly with the rightful interests of all concerned, but yet to effectively stop the use of competitive methods which are improper, unfair and against public policy," says a statement by Senator Wadsworth and Representative Williams.

"When the commission has reason to believe that a method of unfair competition is employed by a firm, the bill provides that it shall first advise such firm concerning such method and give it the opportunity of an informal hearing. If the firm is able to satisfy the commission that the commission is without jurisdiction to proceed or if the firm discontinues the methods in question, the commission shall go no further, although it can reopen the questtion later and proceed under the act for good cause found by it. It is believed that this method of procedure will dispose of a large numbers of matters without delay or consequent legal proceedings, and with less expense to the government and to the parties concerned.

"When formal complaint is issued, it is provided under this bill that the notice of hearing shall contain a plain and concise statement of the questions presented, the practices under investigation, the commission's belief with reference thereto and the reasons of fact and the law for such belief. At the formal hearing, if the commission is satisfied that it is without jurisdiction or if the respondent shall discontinue the practices in question, the proceedings shall be dismissed by a proper order. Under the bill also the respondent shall have the right to make a written motion to dismiss the proceedings, and, from the facts as alleged in the notice of such hearing, have the questions thus presented passed upon before the expense involved in the taking of testimony is undertaken.

"Under another provision of this bill, when an order by the commission is brought before the courts for enforcement or review, the commission's findings as to the facts shall be conclusive to the extent that they are supported by a fair preponderance of evidence, or, if no evidence was taken, by the admitted or stipulated facts reasonably construed. Under the present act the commission's finding when under review by the courts, shall be taken as conclusive if supported by testimony, there being no provision as to a fair preponderance of the evidence and as to permitting a stipulation between the parties as to the facts."

Index Is Ready

THE index to Volume LXXV of IRON TRADE REVIEW, *covering the last six months of* 1924, *now is ready for distribution. Copies will be sent to all subscribers desiring them.*

Says Furnace Is Solvent

Youngstown, Jan. 27.—H. W. Grant, receiver of the Struthers Furnace Co. announces that the New York offices of the company will be closed Feb. 1 and the records moved to Youngstown. Mr. Grant has terminated the lease of the company and sold the furniture. Pending the completion of an audit of the books now being made in the New York office, Mr. Grant was not prepared to say much about the future of the company.

"The Oct. 31 statement reveals that the company was solvent, but suffered from the lack of working capital," Mr. Grant said. "The statement showed liabilities of $3,572,710.14 exclusive of capital stock. Of this amount $1,500,000 is secured to bond holders by a first mortgage and $164,533.96 represent unsecured creditors. The balance are bank loans secured by pig iron warrants at $19 per ton. The iron on hand at present prices will leave a balance of about $300,000 after paying the banks."

Try Big Pittsburgh and Chicago Merger

CHICAGO, Jan 27.—Although no action is said to be imminent, it appears that quiet negotiations looking to a merger of the Inland Steel Co. of this city and the Jones & Laughlin Steel Corp. of Pittsburgh continue. Expansion plans of both interests are awaiting the outcome. The belief is widely held that whatever growth results in the Chicago district as a result of the abandonment of Pittsburgh plus will be more in the nature of extensions to existing plants than in entirely new works.

Steel Industry

On Pacific Coast Holds Its First Conference In History

San Francisco, Jan. 26.—The first iron and steel industry conference conducted in the history of the Pacific Coast was held at the Delmonte hotel here Jan. 23 and 24. under the auspices of the California Development association and the Los Angeles and San Francisco chambers of commerce. The meeting was attended by 175 delegates representing over a hundred leading California companies interested in the production and consumption of iron and steel products. The foremost objective of the conference was to create a class consciousness among the various branches of industry in California, but with a clear understanding that ethical co-operation with the entire national fabric of industry will be accorded.

Resolutions carried unanimously by the conference included one that a program be formulated to obtain from buyers a purchasing policy in support of American coast and California steel products and another that foreign importations be reduced to a minimum when and where they interfere seriously with the proper development of the iron and steel industry on the coast.

Six group meetings were held, the groups being composed of representatives of the various divisions of the industry as follows: Steel mills; general manufacturers merchant and reinforcing bars; jobbers; structural fabricators and foundries. An executive committee is composed of two members from each group and is headed by W. T. McFie, W. T. McFie Supply Co., Los Angeles, chairman; Charles M. Gunn, Gunn Carle & Co., San Francisco, vice chairman; and Charles S. Knight, California Develpoment association, secretary. The first meeting of the excutive committee will be held March 6 at Los Angeles.

The general meeting of the conference was addressed by Paul Shoup, vice president, Southern Pacific Co., San Francisco, and Wiggington Creed president, Pacific Gas and Electric Co., and the Columbia Steel Corp., San Francisco. As evidence of the board constructive sentiment of the conference 16 leading fabricators of the state joined enmasse the American Institute of Steel Construction following an address by C. E. Abbott, executive director of the institute, New York.

A. L. Webster, Wheaton, Ill., was elected president of the Illinois Society of Engineers at its convention in Chicago, Jan. 16. J. N. Woltman, Bloomington, Ill., was chosen vice president and H. E. Babbitt, Urbana, Ill., secretary.

Coast Demand Is Larger

Current Business and Pending Projects Indicate Enlarged Activity for Present Year—French Pipe Tonnage Is Closed

Special By Air Mail

SAN FRANCISCO, Jan. 24.—General business conditions on the Pacific coast improve each week and inquiries and sales for all forms of steel products are increasing. This is especially noticeable in plates and shapes.

Construction work is active and an increase in the number of new projects is reported. Building permits in Los Angeles up to Jan. 13 show a total of 1698 with a valuation of $3,814,400, compared with 1896 permits and a valuation of $6,171,850 for the corresponding period in December.

Bars, Plates and Shapes

While demand for merchant bar material has not increased materially since the new prices went into effect late in December, since consumers covered extensively at the lower levels, concrete bars are in heavy demand. Only one large award was reported this week but business pending totals over 9000 tons. The largest inquiry of the week involves 4700 tons for the Estuary tube in Oakland.

A much better demand for hoops and bands is noted due to the belief present low prices will not be in effect long. Several interests have covered for their requirements for first half. Prices are firm at 2.50c base Pittsburgh as a minimum, with smaller sizes quoted at 3.25c to 3.75c base.

Buyers of bolts, nuts and rivets are specifying against contracts rather heavily. Sellers look for little new business during the next 30 days. Large machine bolts are being quoted at 50, 10 and 10 off while small rivets have firmed somewhat and 70 and 10 now represents the general run. A good demand for structural rivets is reported and although 2.60c is the prevailing figure, 2.55c base Pittsburgh can still be obtained on desirable tonnages, one Los Angeles consumer placing 160 tons this week at 2.55c.

Awards of plate tonnages this week totaled less than 500 tons. The Seattle Boiler Works took 250 tons for a standpipe for the City of Seattle and the Western Pipe & Steel Co. one 37,000-barrel tank for the Associated Oil Co., at Monterey, Calif. Bids will be opened on 6000 tons for the Estuary tube in Oakland March 23. No action has yet been taken on the gas generators for the Pacific Gas & Electric Co., San Francisco calling for 480 tons. Bids will be opened next week for 850 tons in connection with the Port Angeles, Wash., pipe line. While rumors of 2.45c c.i.f. persist, the best verified price is 2.50c which applies only on desirable lots. Some interests are quoting 2.55c to 2.60c and even higher.

Structural awards of the week included 1200 tons for the Women's club, San Francisco, taken by Dyer Bros. Other awards ran the total over 3000 tons. Some idea of the extent of the construction program under way in the West may be gleaned from the fact that over 30,000 tons are pending. Prices, as far as can be ascertained, are firm at 2.50c c.i.f. coast ports with an upward tendency noted.

Indications point to a steady increase in demand for cast iron pipe from municipal and private sources. The only award placed this week went to the Pacific Pipe & Supply Co., which will furnish 1162 tons of French pipe for Glendale, Calif. Pending business totals 8200 tons all of which, it is expected, will be placed this month.

An increase in practically all lines of out-of-stock material is reported by distributors who state sales so far this month are well ahead of January, 1924.

Northwest More Active

SEATTLE, Jan. 21.—Business conditions in the Pacific Northwest are satisfactory. Buying has not yet attained the momentum of spring activity but there is every indication that trade will be under way soon.

The Chicago, Milwaukee & St. Paul railroad has added 400 men at its Tacoma shops where 700 box cars are being rebuilt and 250 skeleton steel logging trucks are being constructed at a cost of $750,000. Puget Sound Power & Light Co. is planning construction of a modern interurban terminal at Seattle.

Pig Iron and Coke

One importing interest has several shipments of No. 1 continental iron en route for January-February delivery here at $27 delivered. This grade is guaranteed 2.75 to 3.50 silicon. There is not much inquiry at present as consumers are well supplied for several months. The same importer has 200 tons of hematite en route for February arrival and an equal tonnage for March, as well as 75 tons of Swedish charcoal pig iron due next month. This grade brings $40 per ton delivered and is used for special work.

The first shipment of North German coke is to arrive here within a week, 250 tons having been placed in this territory. This coke analyzes 89 per cent carbon and 7 per cent ash. Some delivered at San Francisco has turned out satisfactorily. The price delivered is $16.50 to $17 according to location of the consumer.

During the week, seven large foundry owners pooled their needs and ordered 600 tons of Plean coke at $15 delivered Seattle or Tacoma. Of the total shipment Tacoma consumers will take 200 tons.

Bars, Plates and Shapes

Bars are in fair demand, a greater inclination to buy being observed in the last few days, due to firmness of the market. It is reported the difference in mill prices between Seattle at 2.50c and San Francisco at 2.60c is to be adjusted. An advance in the Seattle price is not unlikely.

There is little activity in plates although the market is firm at 2.50c.

Shapes are also firm at 2.50c the same as a week ago. While fabricating shops are not unusually busy, several sizable projects are to be up for figures soon and an active spring business is in prospect. The Wallace Equipment Co. is completing work on three large bridge projects, the Wishkah contract at Aberdeen, Wash., the Twelfth avenue and Montlake bridges, Seattle.

Finished Materials

Wholesale jobbers find building materials in fair demand but logging and lumber industries are not placing large orders. Prices are unchanged although advances are thought to be likely.

A heavy inquiry is current for cast iron pipe and there is every indication of large buying this year. Several large contracts are up for figures and two or three awards are to be made early next month. Contract for 206 tons of cast iron pipe for the Everett Pulp & Paper Co., Lowell, Wash., went to a French concern while Spokane awarded between 500 and 600 tons of small size pipe to the National Cast Iron Pipe Co.

Old Materials

While there is a slightly firmer tone in steel scrap the main buying interest is still covering its requirements at $8 gross, buying only sufficient for its immediate needs. There is little change in No. 1 cast iron scrap which is quoted at $18.

Farms Waste Machinery

St. Louis, Jan. 26.—D. E. Darrah, of the Hart-Parr Co., Charles City, Ia., who addressed the convention of the Mississippi Valley Implement Vehicle & Hardware association here last week declared it will take a billion dollars a year for 10 years to replace the obsolete and useless farm machinery on farms in the United States. Hundreds of farmers, he said, leave their machinery in open fields and leaky barns, which contributes to the high cost of production of farm products.

J. A. Spillman of Rollo, Mo., was chosen president of the association, and Tom Johnson of Newport, Ark., chairman of the board. Directors elected are Ray Merriwether, Paragould, Ark., and L. P. Whitewell, Donopnah, Mo. W. V. Jeans of Hannibal, Mo., was elected secretary-treasurer.

Approximately $1,000,000 will be spent in replacing boilers at the Farrell works of the Carnegie Steel Co., Farrell, Pa., an appropriation for this amount having been granted recently by the United States Steel Corp.

British Iron Exports Reduced

Sales Diminishing Except Those to United States—Tin Plate Demand Lagging, and Output Further Restricted—German Domestic Markets More Satisfactory—Buying Lorraine Semifinished Steel

Iron Trade Review Staff Cable

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Jan. 27.—Exports of pig iron by British interests are diminishing, except those to the United States. Another furnace has been restarted making ferromanganese, in response to the recent increase in demand. While the market for galvanized sheets is improving, activity in the tin plate field again is declining. Tin plate output has been further restricted. Less continental competition is noted in the iron and steel markets, although Belgians are offering concrete reinforcing bars at £6 10s ($31.14) delivered, against the British price of £8 15s ($41.92).

Reports from Berlin state German exports are decreasing as the domestic markets become more satisfactory. Paris reports French exports are satisfactory. German rerollers are buying Lorraine semifinished material, and paying the duty.

British Steel Market Pauses as Demand Lags

European Staff Special

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Jan. 19.—Confidence in the reality of the revival has shakened a bit since the quarterly meeting, which added practically nothing to the business in hand. Consumers place reliance on the large unemployed plant to check any upward movement in prices. Steelworks are mostly in operation, but find it difficult to get specifications, and prices in almost all departments are rather weaker. Structural steel is the most active line. Several water undertakings are ordering pipe lines. Cardiff and another Welsh body has ordered steel pipe each to the value of £100,000 for which Guest, Keen & Nettlefolds will furnish the steel plates and Piggot & Co., of Birmingham will make the pipe. Work is thus provided for the latter firm for over a year. A number of bridges will be repaired or replaced and several steel departments in Sheffield are busy, the demand for special metals having improved. The chief deficiency is in rails and ship-

Sterling—$4.78

building. The outlook for the latter is rather dismal, ships building at the end of December being only 286 against 337 three months earlier.

Rails also are rather sparsely ordered and this country has lost much Indian business which has gone to Germany or Belgium. India is no longer disposed to favor this country at the expense of the native pocket. By way of small compensation there are fair rolling stock orders. The London Midland & Scottish Railway Co. now gives details of its rolling stock program, indicating that 5100 wagons have been ordered, divided between the various British companies, of which the bulk are situated in Birmingham. South Staffordshire will provide iron work for the fittings, but the 20-ton steel wagons will doubtless get their steel from big concerns, probably in South Wales.

Steel prices have weakened a little. Keenness for specifications has led to the abandonment of £9 5s ($44.21) for joists, sections, etc. £9 ($43.02) being usually quoted, and in some case £8 17s 6d ($42.42) has been accepted. In December steel ingot output was 551,000 tons against 674,300 tons in November. This is much the smallest figure for the year and is probably due to the unusually long holidays taken at Christmas. It compares, however, with 816,900 tons in March, the only figure approaching it being August with 527,500 tons. Pig iron shows more steadiness with a production of 580,300 tons in December, but this is nearly 50,000 tons below the output a year ago.

The pig iron position is slowly improving. Stocks are not now troublesome and the tendency is to add to active furnaces. Two are starting next week at the Ayresome works in Middlesbrough to make hematite pig iron. In Barrow the 14 furnaces at work are at present sufficient, against the normal pre-war number of 24. The price of ferro-manganese has been ad-

European Steel Delivered to World Ports

Gross Tons—Prices Last Reported

	U. S. A. North Atlantic Ports	U. S. A. Pacific Ports and Vancouver‡	Buenos Aires, Rio de Janiero, East Coast of South America	Valparaiso, West Coast of South America	Calcutta, Bombay and Indian Ports	Singapore and Straits Ports	South African Australian, & New Zealand Ports	Hongkong & South China	Shanghai and North China	Japanese Ports
*Foundry No. 3 Pig Iron, Si. 2.50-3.00	$23.00	$23.75	$24.25	$26.60	$24.60	$28.20	$28.75	$28.75	$29.50	$28.75
*Hematite Pig Iron, Phos. 0.02-0.05	24.80	25.50	26.00	28.45	26.40	31.15	30.50	30.50	31.10	30.50
Standard rails	34.10	35.40	35.40	36.55	33.50	38.40	38.95	38.95	39.50	38.95
Merchant bars	1.50c	1.55c	1.55c	1.61c	1.47c	1.68c	1.72c	1.72c	1.74c	1.72c
Structural shapes	1.47c	1.52c	1.52c	1.58c	1.45c	1.66c	1.69c	1.69c	1.71c	1.69c
Plates, ship bridge and tank	1.82c	1.88c	1.88c	1.92c	1.80c	2.00c	2.04c	2.04c	2.07c	2.04c
†Sheets, black, 24 gage	2.88c	3.02c	3.12c	3.06c	2.92c	3.08c	3.12c	3.12c	3.14c	3.12c
‡Sheets, galvanized, 24 gage corr.	4.01c	4.15c	4.22c	4.18c	4.05c	4.20c	4.24c	4.24c	4.27c	4.24c
Plain wire, base	2.31c	2.36c	2.36c	2.41c	2.28c	2.48c	2.52c	2.52c	2.55c	2.52c
Galvanized wire, base	3.00c	3.05c	3.05c	3.10c	2.98c	3.18c	3.21c	3.21c	3.24c	3.21c
Wire nails, base	2.79c	2.84c	2.84c	2.89c	2.76c	2.96c	3.00c	3.00c	3.03c	3.00c
‡Tin plate, base box	$5.83	$5.97	$6.08	$6.00	$5.86	$6.03	$6.06	$6.06	$6.09	$6.06

The foregoing prices are for delivery by cargo liners in ordinary quantities 100 to 1000 tons, c.i.f. to port of destination, but *without* customs duties, unloading charges, dock dues, commissions, etc., at destination. Owing to lack of uniformity in ocean freight rates, cargo shipments by tramp steamers may show considerable variation from these quotations. Pig iron and rails quoted dollars per ton, finished steel in cents per pound, tin plate in dollars per box. Quotations are for *Continental* iron and basic-bessemer steel, except as indicated; for British material add $4.50 to $6.00 per ton.

†British material, basic open-hearth. *British, Middlesbrough. ‡Steel to Vancouver, deduct 7 cents per 100 pounds.

Current Iron and Steel Prices of Europe

Prices Converted into Dollars at Rates of Exchange, January 26

	British Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgian and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Despatch—By Cable	£ s d			Francs		Francs		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50—3.00	$19.20	4 0 0*	$18.63	345	$18.50	360	$19.92	4 3 0
Basic	19.20	4 0 0	18.90	350	18.50	360	23.40	4 17 6
Basic-bessemer	21.60	4 10 0†	17.55	325	17.48	340	19.92	4 3 0
Hematite, Phosphorus 0.02-0.05	20.88	4 7 0	22.95	425	.....	...	25.20	5 5 0
SEMIFINISHED STEEL								
Billets	$32.40	6 15 0	$25.92	480	$25.96	505	$26.40	5 10 0
Wire rods	52.80	11 0 0	34.83	645	34.95	680	39.36	8 4 0
FINISHED STEEL								
Standard rails	$40.80	8 10 0	$27.00	500	$29.30	570	$28.80	6 0 0
Merchant bars	1.77c	8 5 0	1.31c	535	1.32c	565	1.29c	6 0 0
Structural shapes	1.71c	8 0 0	1.20c	490	1.22c	525	1.24c	5 17 0
Plates, ship, bridge and tank	1.87c	8 15 0	1.67c	680	1.56c	670	1.51c	7 2 6
Sheets, black, 24 gage	2.68c	12 10 0	3.06c	1,250	2.91c	1,250	2.89c	13 10 0
Sheets, galvanized, 24 gage, corrugated	3.69c	17 5 0	4.28c	1,745	5.30c	2,275	3.75c	17 10 0
Bands and strips	2.35c	11 0 0	1.64c	670	1.84c	790	1.93c	9 0 0
Plain wire, base	2.35c	11 0 0	2.45c	1,000	2.10c	900	1.82c	8 10 0
Galvanized wire, base	3.00c	14 0 0	3.19c	1,300	2.68c	1,150	2.20c	10 5 0
Wire nails, base	3.10c	14 10 0	2.65c	1,080	2.10c	900	2.67c	12 10 0
Tin plate, base box 108 pounds	$ 5.64	1 3 6	.....	....	.....	....	$ 5.64	1 3 6

Domestic Prices at Works or Furnace—Last Reported							Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$19.44	4 1 0	$16.47	305(2)	$18.76	365	$20.24	88
Basic pig iron	19.20	4 0 0	16.47	310(1)	17.99	350	22.54	98
Furnace coke	4.41	0 18 9	7.67	142	7.45	145	5.52	24
Billets	31.20	6 10 0	23.22	430	26.73	520	28.75	125
Standard rails	1.82c	8 10 0	1.18c	480	1.42c	610	1.43c	138
Merchant bars	1.82c	8 10 0	1.25c	510	1.39c	595	1.37c	132
Shapes	1.82c	8 10 0	1.19c	485	1.33c	570	1.32c	127
Plates, ship, bridge and tank	1.98c	9 5 0	1.67c	680	1.58c	680	1.56c	150
Sheets, black, 24 gage	2.78c	13 0 0	3.06c	1,250	2.97c	1,275	2.87c	275
Sheets, galvanized 24 gage, corrugated	3.69c	17 5 0	4.28c	1,745	5.30c	2,275	5.16c	495
Plain wire	2.35c	11 0 0	2.35c	960	2.10c	900	1.88c	180
Bands and Strips	2.46c	11 10 0	1.65c	675	1.86c	800	1.72c	165

* Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 16s 9d ($4.06) f. o. b. Ferromanganese, £15 10s 0d ($74.40) f. o. b. The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

vanced to £15 10s ($74.09) and business with America is expanding. This is however, the only pig iron advance Middlesbrough brands being weaker, No. 3 G. M. B. foundry being £4 0s 6d ($19.23) a reduction of 6d per ton and hematite East Coast mixed numbers £4 7s ($20.79). Foreign No. 3 foundry iron is offered at Antwerp at £½ 14s 6d ($17.80) a figure with which Cleveland cannot compete. Midland brands, although nominally unchanged, are slightly weaker.

Sheffield makers are busier than they were but large steelworks keenly need orders. The Staffordshire iron trade has a poor outlook. The uneconomic position of this industry is illustrated by the relation between pig iron prices and those of finished material. In the steel trade the fall in pig iron was accompanied by a fairly equivalent reduction in the selling price of steel, joists for example from £10 ($47.80) to £9 ($43.02), delivered and ship plates by about £1 ($4.78) per ton. But Staffordshire buying its Northampton forge pig iron at £3 11s ($16.96) as against £4 7s 6d ($20.91) a year ago increased its crown bars from £12 10s ($59.75) to £12 15s ($60.94) and its nut and bolt iron from £11 ($52.58) to £11 5s ($53.77) substantially widening the gap between iron and steel prices thereby reducing its ability to compete.

The Continent continues to quote rather low prices, for example, £6 5s ($29.87) for billets against the English price of £7 ($33.46) Germany is sending in engine shafts ground and polished at £12 15s ($60.94).

German Domestic Prices Above Export

European Special Service

BERLIN, Jan. 17.—German export business is influenced by the prices obtainable in the domestic market. Foreign prices are below those which can be had at home and producers are unwilling to accept export orders. Makers also have unfilled orders on their books extending over two months. As a result of these conditions exports have declined. A few orders have been booked from the Scandinavian, border and Balkan states. Bars have been sold at £5 17s 6d per metric ton ($28.80) to Scandinavia and South America but German offers of £6 10s ($31.90) have not been accepted by Swedish consumers. One-millimeter sheets have been sold at £11 15s ($54.25) to the Balkan states and 2-millimeter sheets at £10 15s ($49.50) to the Border states. Great Britain is keenly competing in thin sheets and Belgium in medium sheets and plates. Recently Thyssen asked £7 10s at works ($36.60) for plates but this price was too high and shows that in certain cases producers are not inclined to bear the risk incurred in offering f.o.b. prices. Heavy imports were made from France, Belgium and the Saar district prior to Jan. 10 when the new import duty of 25 marks ($5.95) metric ton was enforced. It is expected this new tariff will cause domestic prices to rise.

German export figures for November were 262,416 metric tons, or 72,740 tons in excess of October figures. This is because for the first time in almost two years November figures include exports from the occupied zone. Exports for the first 11 months of 1924 were 1,599,145 metric tons compared with 1,574,558 tons in the corresponding period of 1923, the exports of the occupied zone being included only in the November figures of 1924. Imports for the first 11 months of 1924 were 1,027,582 tons, or about 800,000 tons less than the preceding year. November exports of bars and structural shapes totaled 39,041 metric tons against 22,949 tons in October, the increase being mostly due to larger shipments to Holland and the United Kingdom. Exports of plates were 19,065 tons against 10,015 tons, medium sheets 6762 tons against 4683 tons and light gage sheets 3294 tons against 3057 tons.

IRON TRADE REVIEW

Registered U. S. Patent Office

The Authority of Industry ***National and International***

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Earl L. Shaner, - - - - - Engineering Editor
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Published Every Thursday by
THE PENTON PUBLISHING CO., CLEVELAND, O.

Member, Audit Bureau of Circulation, Associated Business Papers, Inc., and National Publishers Association

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Subscription, United States, Cuba and Mexico, $6 per year. Canada, $8.50 per year. Great Britain and other countries, £2:0:0 per year

Entered at the Postoffice at Cleveland as Second Class Matter
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Buying Restraint Gives Strength

FOR some years business conditions have hinged upon the chill and fever plan. The old, orderly course of the business cycle has been succeeded by a choppy series of ups and downs. Buyers have rushed in, prices have shot upward, industrial production has sped forward, and prosperity has seemed within grasp on numerous occasions. But the enthusiasm has died out quickly, like a stubble fire and gloom and inertia have spread their drab blankets over business.

Some people have attributed this condition to the alleged over-capacity of our industries. Others hold the war-stimulated psychology responsible. Still others maintain that no real prosperity was possible while the American farmer remained in the throes of acutely adverse conditions, and Europe toppled upon the brink of chaos. But whatever the cause, the facts were there. Since August, American business has been indulging in another recovery. Operations, demand and prices have advanced. Confidence at the start of the year was at high tide.

Many people are wondering if this present improvement is to live through the short trousers stage and blossom to normal maturity. A few believe it will soon be struck a deadly blow by European competition. On the other hand some are convinced that with the farmer seeing daylight again, with Europe shaking off its nightmare, and with domestic consumption and purchasing power at high levels, the groundwork is laid for an extended period of good times. Much depends, it would seem, upon whether or not the farmer is to have another prosperous year and if European buying is to continue upon a good scale. Both are riddles that must wait for their answer.

But there are some wholesome signs to be seen. One of these is the present refusal of buyers of iron and steel and a few other basic commodities to be swept off their feet by the onrush of confidence. While heavy commitments have been made specifications are being given cautiously and only as definite needs appear. The reckless overconfidence which many economists feared was on the way at the start of the year has not appeared. That is a most healthy condition. If this policy is continued, overproduction and overstocking will be discouraged, prices will be kept in check and the general situation held in equilibrium. Steel demand has enormously improved since last summer, but capacities are sufficient and transportation facilities ample to meet all ordinary needs of consumers. The restraint of steel buyers, if generally followed, may well ward off dangerous excesses and lead the way toward prolongation of this period of prosperity.

Exploiters That Exploit

THEORETIC dabblers in economic matters, many of whom never earned a dollar by physical labor and never bought the labor of another person in the process of producing something to be sold in the open market, seem to be most tender for the welfare of what they term "organized labor" or "labor unions." Repeatedly in discussion of industrial matters these parlor economists lament the fact that modern efforts to bring the employer and his employes into better contact, for the benefit of both, usually result in the elimination of the labor representative who is assumed to have closest to his heart the welfare of the worker.

To observers who have seen the practical working of the labor union plan by which the business agent of the union often wins his way to this position by use of the strong arm, or worse, the assumption that this individual has the interest of anything but his own bank account at heart is amusing. Or it would be were the situation not so tragic.

As a matter of fact labor in recent decades has not been exploited a tithe as much by employers as by its own reputed representatives. Strikes called that the business agent may enforce demands for graft cost the worker his pay for many days at a time. The business agent is the only one who profits.

Recent efforts to unionize the steel industry at

bottom are dictated by a desire for the fat pickings in union dues and not that the condition of the worker may be bettered. The check-off system of collecting dues from coal miners is kept in effect that the union officials may have the dollars that result therefrom, without the possibility of the worker refusing to pay. If he works he must pay his dues.

That the organized labor in a shop union unaffiliated with a national body and not represented by a business agent and paying no dues is "organized" does not seem to enter the mind of those who bewail the absence of affiliation with one of the strong exploiters of the workingman.

Simplifies Distribution Problem

IN PRACTICALLY accepting a program of simplification of gages and sizes of steel sheets, producers, distributors and consumers share with the government the credit for taking another important step toward better methods of distribution. The decision to reduce the number of items from 1819 to 263, accomplished in a period of about 18 months, indicates a commendable spirit of co-operation among manufacturers, jobbers and users.

The volume of work involved in this achievement is impressive. In May, 1923, a committee was appointed to study the sheet industry with a view of suggesting varieties that could be eliminated. A complete survey was made, every mill co-operating in listing the sizes and gages ordered in the last six months of 1922. More than 20,000 separate items were handled in compiling this record, which upon analysis, showed that 1819 varieties of sheets had been ordered in the six-month period. Further investigation revealed the significant fact that 85 per cent of the total tonnage ordered embraced only 15 per cent of the varieties, namely 273 sizes and gages. For instance, 72 per cent of the business in one pass cold rolled and box annealed was done in 43 of the 434 varieties ordered. Likewise in blue annealed sheets 70 per cent of the tonnage was of 52 of the 523 varieties made.

These definite figures on consumption gave the producers, distributors and consumers tangible evidence of the waste involved in handling infrequently ordered sizes of sheets. They finally drafted a schedule of recommended varieties, which with some minor revisions, now is adopted. The schedule is subject to change from time to time as experience dictates, and no regulatory power is exercised to enforce its adoption.

It now is up to all who are engaged in any way with the distribution of sheet steel to give the new standard sizes a fair trial. Criticism should be of a constructive character so that in May, when the subject again comes up for attention, the experience of all interests may serve as a guide to future changes in the schedule, if any seems desirable.

Sheet Industry Has Problem

THE sheet industry as a whole has been passing through a period of rather checkered fortune which is giving various manufacturers some hours of careful and puzzled thought. The increasing uncertainty regarding the future of the automobile industry, the chief consumer of sheets, undoubtedly is responsible in no small way for this disturbed feeling.

Sheets, a high cost product due to the labor factor, have shown less buoyancy during the past several years than any other major finished product, not considering rails, which appears completely stabilized at the present price. This has not been due to a lack of tonnage. During 1924 shipments by the sheet mills at large were substantially 70 per cent of capacity while the year for the steel industry as a whole was probably not better than 65 per cent. In 1923 sheet shipments were around 80 per cent. Yet the market has been showing an instability that virtually has become chronic. Even with shipments running recently around 80 per cent, prices have remained soft and irregular, while other lines have been acquiring increased firmness.

In casting about for the answer the widely scattered ownership of the sheet plants of the country projects itself conspicuously. Something like 40 distinct companies are now engaged in making sheets for the market and 80 per cent of this capacity is located in Ohio, western Pennsylvania, or close to the northern borders of West Virginia and Kentucky so that for many of these plants there is little advantage of location over their competitors. Elimination of Pittsburgh plus with its localizing force has not helped this situation.

The capacity of the sheet industry is well in excess of 4,000,000 tons annually and still is being increased. Most of this construction has been done by the independent companies so that the proportion and consequent influence as a stabilizing factor of the Steel corporation has diminished steadily. Today the sheet subsidiary of the corporation controls not much more than 20 per cent of the total industry.

In contrast with the better control in other major finished lines of steel, because they are in fewer hands, the inference seems to be that the troubles of the sheet industry arise from its diffused and ramified ownership. This is causing talk as to the necessity of consolidations and other means of shaping production in closer accord with the changing volume of demand. Circumstances promise to keep these live topics in the industry.

Yesterdays in Industry

Trade and Technical News from IRON TRADE REVIEW 10, 20 and 30 Years Ago

January 31, 1895

THE custom of buying pig iron by fracture would give way to the more exact chemical analysis, predicted Charles Johnson, superintendent of the Howe Scale Co., Rutland, Vt., addressing the Western Foundrymen's association at Chicago. Just when this prediction came true is not a matter of record but chemical analysis has dictated most pig iron purchases for some years.

* * *

Use of electric instead of steam power in manufacturing establishments was discussed at some length at the same meeting of foundrymen and manufacturers with the conclusion that large plants would need the change most and that smaller users also would find some advantages. Evidently the present wide utilization of electricity for power was not foreseen by the most sanguine.

* * *

James G. Butler Jr., "Uncle Joe," then manager of the Brier Hill Iron & Coal Co., Youngstown, O., was suffering from a broken leg sustained in a fall on the ice. The fracture certainly was well mended and has carried him well these 30 years.

* * *

February 2, 1905

ABSORPTION of the Rogers Locomotive Works, Paterson, N. J., by the American Locomotive Co., N. Y., was completed. The former had capacity for 300 locomotives per year and the latter for 3000.

* * *

Charles Hudson, receiver for the Omega Steel Co., New Haven, Conn., asked court permission to sell the company's secret process for making steel for $500. Opposition was raised on the plea the receiver had issued stock to the extent of $3,000,000 based on this secret.

* * *

Striking employes of the Newport Foundry & Machine Co., Newport, Ky., bought the plant for $43,100 when its owners started to dismantle and demolish it. Strikebreakers living in the plant since September were sent away. The stock was acquired by 31 employes in 160 shares of $250 each.

* * *

February 4, 1915

WAR orders taken by American manufacturers caused the purchase of large numbers of machine tools and exports to neutral countries added to this demand. This gave tool builders their first major activity for some time.

* * *

One of two giant floating cranes for auxiliary naval equipment at the Panama Canal, contracted in January, 1913, to a German firm, collapsed on a test trial with a load of 120 tons. Its capacity should have been 250 tons. Award of this work to a German builder was considered a national disgrace, particularly when American workmen were unemployed.

* * *

Ambrose Swasey of Warner & Swasey, Cleveland, gave $200,000 to the Engineering Foundation, just established by the United Engineering society.

Some Prices from the Past

	Jan. 31, 1895	Feb. 2, 1905	Feb. 4, 1915
Basic, Pittsburgh	....	16.75	13.45
Bessemer, Pittsburgh	10.65	16.35	14.70
No. 2 foundry, Pittsburgh	10.25	16.85	13.70
No. 2 foundry, Chicago	9.75	17.50	13.00
Lake Superior, Chicago	13.00	18.50	15.75
No. 2 southern, Birmingham	8.00	13.75	9.50
Bars, steel, Pittsburgh	1.25c	1.40c	1.10c
Bars, steel, Chicago	1.25c	1.565c	1.29c
Plates, Pittsburgh	1.15c	1.40c	1.10c
Shapes, Pittsburgh	1.25c	1.50c	1.10c
Heavy melting steel, Pittsburgh	....	16.00	11.50
Heavy melting steel, Chicago	6.75	14.50	9.00

Labor Cost, 80 Per Cent of Price

To the Editor:

The writer was privileged to have been a member of the war industries board as director of war service committees, thus affording him a close relation with the industries of the United States. He was also connected with several railroads, industries owning coal and iron mines, steel mills, lumber mills and manufacturers of finished products; and has sat in the councils of agricultural interest and held hearings on transportation, marketing and distribution for a congressional committee.

These experiences have been utilized in an endeavor to ascertain some of the elements of cost, especially the accumulative labor content cost in the finished products. More than three years were spent in studies, research, correspondence, conferences with industries and economists to check and recheck labor costs from the raw materials in the ground, crops in the field, through the manufacturing processes, resulting in the finished article, with the view of obtaining the cumulative, not the direct, labor percentages in the wholesale prices of the various commodities.

All labor's participation and the effect of labor costs on prices, we believe, are approximately correct as shown in the following percentages of accumulative labor cost content in wholesale prices of the following commodities.

Basic Materials	Per cent
Coal	79
Coke	80
Lumber	79
Steel	85
Pig iron	86½
Steel castings	86
Leather	78
Paint	72
Average	86

Manufactured Products	Per cent
Barbed wire	86
Locomotives	85
Railway cars	78
Book paper	78
Radiators	84
Hardware	82
Shoes	80
Men's clothing	79
Electric machinery	80½
All machinery	84
Plate glass	85
Copper	84
Furniture	85
Farm implements	82
Woolen textiles	80
Adding machine	84
Pianos	82
Average	82.2

Agriculture	Per cent
Crops	70
Truck	78
Fruit	70
Animal	76
Butter	82
Average	75

Miscellaneous	Per cent
Railroads	81.8
Building	80
Motor trucks	82
Motorcycles	80
Average	81

The general average is 79.9 per cent. The labor content in taxes, insurance, banking, etc., have not been ascertainable. Distribution of percentages to wholesale prices could be regarded as follows:

	Per Cent
To labor	80
To taxes and insurance	3
To depreciation and rentals	2
To interest	2
To profit on raw and semifinished materials	3
To miscellaneous, losses, distribution service	4
To profit, finished products	6
Wholesale selling price	100

W. H. MANSS,
President Williams Products Co., Chicago

December Imports Lead 1924

Decided Increase Noted, Receipts Totaling 69,280 tons—1924 Fell Behind 1923—Exports for 1924 of 1,830,862 Tons Lower Than Total of Preceding Year—Pig Iron Features Import List

EXPORTS of iron and steel from the United States in 1924 totaled 1,830,862 tons, according to reports of the department of commerce just issued, or far below estimates predicted in December. Shipments slumped considerably toward the end of the year, November exports totaling 126,877 tons and December's 131,339 tons as compared with 186,770 tons for November 1923 and 179,215 tons for December of that year.

Imports in 1924 totaled 556,729 tons or considerably below the aggregate for the year preceding, which was 734,734 tons. December's imports were

IMPORTS AND EXPORTS
Gross Tons

	1924		1923	
	Imports	Exports	Imports	Exports
Jan.	26,677	251,284	120,080	124,444
Feb.	42,054	168,191	67,707	135,182
March	39,279	124,762	106,206	165,624
April	50,975	132,739	77,909	179,159
May	66,805	168,172	75,891	204,988
June	60,474	172,982	68,019	172,747
July	30,410	138,845	53,448	170,259
Aug.	44,928	136,025	45,432	163,010
Sept.	45,216	135,894	36,612	173,664
Oct.	40,877	158,553	29,884	154,079
Nov.	35,720	126,877	26,534	186,770
Dec.	69,280	131,339	27,012	179,215
Total	556,729	1,830,862	734,734	2,009,141

Year	Imports	Exports
1922	712,895	2,005,100
1921	135,825	2,150,276
1920	421,274	4,934,087
1919	322,264	4,397,295
1918	169,110	5,338,019
1917	330,201	6,465,053
1916	328,965	6,110,732
1915	282,396	3,532,564
1914	289,775	1,549,554
1913	317,260	2,745,635

69,280 tons, the largest monthly figure of 1924 and a decided increase over November receipts of 35,720 tons. The increased import tonnage in December was due largely to shipments of pig iron received which footed up 28,143 tons. This is the largest amount of pig iron to be imported in many months and compared with 9880 tons in November and 12,313 tons in December 1923. Increased receipts of scrap also were largely responsible for the increased import tonnage in December. This product jumped from 3571 tons in November to 13,212 tons in December.

Other items on the import list showing a decided increase are ferromanganese which gained from 6185 to 8648 tons, structural shapes from 3020 to 5991 tons, rails from 2497 to 3758 tons and sheets and saw plates from 40 to 336 tons. Products showing a decline in December were bar iron; steel ingots, bars, etc.; round iron and steel wire; nails and screws; bolts, nuts and rivets and flat wire and strip steel.

Increases in welded black pipe and scrap shipments featured the gains on the export list. The former gained from 2931 to 7087 tons and the latter from 2555 to 5771 tons from November to December. Tin and terne plate shipments continue to be one of the largest export items, this product totaling 12,566 tons in December.

Decline in exports in 1924 from 1923 was accounted for largely by decreases in steel bars, iron bars, wire rods, boiler plates, skelp, structural shapes, rails, welded black pipe, galvanized wire and wire nails. The only items showing a decided increase in 1924 over the year preceding were scrap, steel

IRON AND STEEL EXPORTS
Gross Tons

	December		Twelve months ended December	
	1924	1923	1924	1923
Scrap	5,771	5,111	97,447	65,980
Pig Iron	2,549	2,750	41,483	32,318
Semifinished	171	196	4,776	6,704
Sheet, tin plate bars	....	....	59	648
Steel bars	5,942	10,999	98,381	158,319
Alloy steel bars	186	50	2,742	2,148
Iron bars	215	343	5,053	12,663
Wire rods	1,715	6,490	18,762	40,421
Boiler plates	3	1,654	3,281	13,086
Other plates, fabricated	5,263	5,380	81,686	102,375
Skelp iron or steel	5,194	4,387	91,320	104,529
Galvanized sheets	8,166	7,375	108,151	114,750
Steel sheets, black	7,592	36,642	148,742	139,104
Iron sheets, black	1,025	640	11,004	14,158
Strip steel	593	715	9,372	11,412
Hoops, bands and scroll	2,394	1,221	24,769	26,771
Tin, terne plate	12,566	17,608	160,997	124,498
Structural shapes, plain	7,586	6,078	102,408	122,062
Structural shapes, fab	1,013	978	19,864	33,663
Ship and tank plates	467	105	7,593	2,930
Metal lath	288	146	2,309	1,493
Other structural forms	3,221	2,574	43,328	41,803
Rails over 50 pounds	22,323	18,179	190,667	239,364
Rails under 50 pounds	875	3,386	18,162	28,045
Rail joints, etc.	1,184	1,663	18,750	22,743
Switches, frogs, etc.	341	837	7,135	5,685
Railroad spikes	432	656	7,986	8,598
Railroad bolts, nuts, etc.	132	120	2,241	2,562
Boiler tubes	416	1,088	12,363	13,839
Casing and oil line pipe	4,116	6,749	87,383	64,118
Welded black pipe	7,087	5,064	64,964	76,590
Welded galvanized pipe	3,067	2,144	36,240	28,680
Malleable iron pipe fittings	....	375	....	7,747
Malleable iron screw pipe fittings	803	....	11,024	....
Cast iron pipe	....	970	....	15,308
Cast iron pipe fittings	....	863	....	12,757
Cast iron screw fittings	548	....	7,976	....
Cast iron pressure pipe fittings	609	....	13,363	....
Cast iron soil pipe fittings	473	....	7,431	....
Plain iron and steel wire	658	2,490	17,917	38,552
Galvanized wire	939	4,771	19,136	53,679
Barbed wire	6,324	5,573	87,032	70,803
Woven wire fencing	233	138	3,411	4,043
Wire cloth and screening	76	137	1,631	1,960
Wire rope	252	422	4,187	6,256
Insulated wire and cable	58	104	978	1,450
Other wire	702	1,113	11,218	14,571
Cut nails	269	92	2,122	2,300
Wire nails	861	6,490	21,664	45,080
Horseshoe nails	71	80	1,025	1,114
Other nails	514	457	4,738	5,345
Bolts, nuts, etc.	1,145	1,403	17,496	18,907
Other iron and steel	4,900	5,079	65,155	66,175
Ferromanganese and spiegeleisen	....	2	3,165	4,295
Ferrosilicon	11	....	775	814
Total	131,339	181,887	1,830,862	2,033,215

DESTINATION OF EXPORTS FOR December, 1924
Gross Tons

Countries	Rails	Galvanized sheets	Plates not fabricated	Tin terne plate	Steel Sheets, black	Barbed wire
Argentina	....	151	....	379	49	486
Australia	....	290	....	....	....	124
Brazil	....	229	....	244	24	1766
British India	....	....	....	579	....	....
Brit. South Africa	....	6	....	....	....	457
Canada	1043	844	4619	977	2073	996
Central America	....	320	22	....	....	138
Chile	....	9	....	273	....	16
China	....	35	....	998	6	....
Columbia	161	545	....	256	....	788
Cuba	2679	387	6	903	17	258
Europe	....	....	....	....	176	....
Honduras	213	....	....	....	....	....
Italy	....	....	....	101	5124	....
Japan	1473	2794	91	7264	....	....
Mexico	847	589	48	387	58	427
Norway	....	61	....	....	....	....
Philippine Islands	132	544	....	50	25	190
Other countries	16107	924	443	46	22	450
Other Europe	....	187	....	....	....	....
Other South America	65	253	....	....	17	16
South America	....	....	34	....	....	....
Spain	478	....	....	....	....	....
Venezuela	....	....	....	109	....	212

CASTINGS AND FORGINGS EXPORTS
Gross Tons

	December		Twelve months ended December	
	1924	1923	1924	1923
Iron castings	594	827	8,459	10,046
Steel castings	427	321	5,879	4,724
Car wheels and axles	1,755	973	22,328	20,291
Iron and steel forgings	203	196	1,714	3,019
Total	2,979	2,317	38,380	38,080

FERROALLOY EXPORTS
Gross Tons

	December		Twelve months ended December	
	1924	1923	1924	1923
Ferrosilicon	11	....	775	814
Ferromanganese and spiegeleisen	....	2	3,165	4,295
Tungsten, manganese and other ferroalloys	210	146	1,582	1,078
Ferro tungsten, tungsten metal and wire	....	....	2	2
Ferrovanadium	1	6	25	23
Other ferroalloys	57	4	360	107

sheets black, tin and terne plate, ship and tank plates, casing and oil line pipe and barbed wire.

Imports of ores and ferroalloys in December amounted to 29,787 tons as compared with 28,036 in November. The total imports of this class for 1924 were 320,165 tons as compared with 313,147, tons in the year preceding. Iron ore imports showed a decided drop falling from 219,679 tons in November to 185,571 tons in December. The total of 2,047,055 tons in 1924 also was a sharp decrease from 2,768,430 tons in 1923.

IRON AND STEEL IMPORTS
Gross Tons

	December 1924	December 1923	Twelve months ended December 1924	Twelve months ended December 1923
Pig iron	28,143	12,313	209,109	367,778
Ferromanganese	8,648	1,907	47,922	88,570
Ferrosilicon	1,882	401	11,991	11,735
Scrap	13,212	4,542	66,841	162,068
Bar iron	247	394	4,325	7,753
Steel ingots, bars etc.	2,628	2,300	39,023	22,671
Structural shapes	5,991	1,627	43,244	10,673
Nails	3,758	937	43,357	29,705
Boiler and other plates	22	106	3,276	1,818
Sheets and saw plates	336	264	2,790	2,754
Tin plates	31	186	1,036	10,037
Wire rope and insulated wire	264	17	13,655	957
Wire rods	612	346	6,851	3,948
Tubular products	3,007	804	54,473	4,990
Round iron and steel wire	158	278	3,277	3,752
Castings and forgings	191	246	2,854	2,705
Nails and screws	22	47	452	1,060
Bolts, nuts and rivets	11	14	165	216
Flat wire and strip steel	117	266	2,088	1,400
Total	69,280	26,995	556,729	734,590

ORIGIN OF FERROMANGANESE AND MANGANESE ORE IMPORTS
Gross Tons
December, 1924

Manganese ore from:	
Netherlands	3,400
Russia-in-Europe	6,873
England	279
Brazil	3,129
British India	1,888
Hongkong	278
Canada	25
Total	15,872
Ferromanganese from:	
France, including Luxemburg	13
Netherlands	79
Norway	4,149
England	4,211
Canada	196
Total	8,648

IMPORTS OF VARIOUS ORES AND FERROALLOYS

	December 1924	December 1923	Twelve months ended December 1924	Twelve months ended December 1923
Ferromanganese	8,648	1,907	47,922	88,570
Ferrosilicon	1,882	401	11,991	11,735
Manganese ore	18,522	12,003	255,157	206,048
Tungsten ores	.....	.....	36	275
Nickel ore and matte	735	529	5,059	6,519
Total	29,787	14,840	320,165	313,147

ORIGIN OF PIG IRON IMPORTS
Gross Tons
Dec., 1924

From:	
Netherlands	2,411
Germany	1,500
England	9,083
Canada	814
British India	14,335
Total	28,143

ORIGIN OF IRON ORE IMPORTS
Gross Tons

From:	December 1924	December 1923	Twelve months ended December 1924	Twelve months ended December 1923
Spain	7,631	....	70,645	214,891
Sweden	39,674	24,336	310,436	749,765
Canada	258	7	4,122	24,710
Cuba	15,207	32,300	285,288	692,979
Chile	101,500	79,100	1,144,775	634,600
French Africa	19,107	13,239	192,814	345,367
Other countries	2,194	8,208	38,975	106,118
Total	185,571	157,190	2,047,055	2,768,430

Exports of Machinery

	December 1924	December 1923	Twelve months ended December 1924	Twelve months ended December 1923
Lathes, number	71	66	805	962
Boring & drilling machines, no	117	220	2,309	2,396
Planers, shapers & slotters, no	15	5	163	252
Bending & power presses, no	20	21	363	294
Gear cutters, no	18	47	462	390
Milling machines, number	51	28	453	308
Thread cutting & screw machines, no	68	57	722	953
Punching & shearing machines, no	10	12	190	372
Power hammers, no	24	21	258	367
Rolling machines, no	....	1	72	34
Sharpening & grinding machines, no	....	733	....	18,481
External grinding machines, no	104	....	2,753	....
Internal grinding machines, no	35	....	503	....
Other grinding & sharpening machines, pounds	75,251	....	1,176,963	....
Chucks for machine tools, no	1,406	3,071	23,686	30,061
Reamers, cutters, drills & other metalworking tools, pounds	161,400	181,797	1,951,264	2,528,641
Pneumatic portable tools, no	1,026	1,143	13,963	12,133
Air compressors, no	448	624	5,888	5,821
Cranes—				
With swinging booms, no	....	....	47	....
Other cranes, no	16	....	221	....
Hoists & derricks, except, no	330	205	4,818	4,587
Sprocket & power transmission, pounds	268,521	282,226	3,816,024	3,203,857
Other chains, pounds	700,769	758,095	9,772,495	9,095,281

Plan Reorganization of The A. M. Byers Co.

Pittsburgh, Jan. 27.—Plans for the recapitalization of the A. M. Byers Co., one of the oldest manufacturers of wrought iron pipe in the country, at Pittsburgh and Girard, O., have been announced. The Byers family and J. Denniston Lyon, who have been in control of this company since the death of A. M. Byers in 1900, will continue their association with the company and have an active part in the direction of its affairs. New factors in the company, it is understood, will include interests associated with Dillon, Read & Co., the First National bank of New York, the Peoples Trust Co. group of Pittsburgh, and H. A. Brassert, consulting steelworks engineer of Chicago. Plans call for the enlargement of output by at least 33 1/3 per cent. Construction of an entirely new plant is contemplated.

Under the recapitalization plan, the company will have $5,000,000 first mortgage 6 per cent bonds, $4,500,000 participating preferred stock and 150,000 shares no par value common stock. A small block of the preferred and common stocks has been placed privately by Dillon, Read & Co.

The A. M. Byers Co. was established in 1864 and is said today to be handling nearly 50 per cent of the wrought iron pipe business of the United States. Plants are located at Pittsburgh and at Girard, O. In connection with the present financing, the company will acquire the entire capital stock of the Orient Coal & Coke Co., with a capacity of 36,000 tons of coal per month and a coke manufacturing capacity of 24,000 tons per month.

Stoker Bookings Drop

Washington, Jan. 27.—Sales of mechanical stokers in December totaled 91, a drop of 15 from the 106-total of November, according to reports to the department of commerce from 13 establishments. Volume of sales in 1924, totaling 1128 was considerably below that of the year preceding at 1464. Following is a comparison of sales since January, 1924:

	Stokers sold	Fire tube boilers	Water tube boilers
1923 Total	1464	177	1287
January	91	7	84
February	110	11	99
March	89	12	77
April	89	15	74
May	64	3	61
June	102	19	83
July	115	14	101
August	94	17	77
September	73	27	46
October	104	7	97
November	106	11	95
December	91	18	73
1924 Total	1128	161	967

To Build Steel Barges

Pittsburgh, Jan. 27.—The Jones & Laughlin Steel Corp. within the next 30 days will start on the construction of 15 all-steel barges for the Vesta Coal Co., to be used in the coal towing trade from the mines in the upper pools of the Monongahela river to the mills at Pittsburgh and Woodlawn. Ten barges will be 200 feet long and five will have a length of 153 feet. They each will be 26 feet wide and 10 feet deep.

The Business Trend

January 29, 1925

BY JOHN W. HILL, FINANCIAL EDITOR

AT THE start of the year there was no surplus of commodities, which was a sound condition; but there was a surplus of business confidence. That was a situation which contained elements of danger.

Confidence tempered by conservatism is essential to prosperity. But confidence with the bit in its mouth, rushing heedlessly into excesses of buying, and excesses of expansion is likely to end by putting business into the ditch.

For that reason recent developments in iron and steel and a few other industries may be looked upon as favorable ones. Buyers are showing no disposition to be swept off their feet. They are examining prices closely and otherwise moving circumspectly.

That is much more healthy than a feverish, unbalanced condition. A sprinkling of caution as the business cycle moves forward should prolong the life of good times. But, of course, there will be no advantage if consumers lean too far backwards.

Some of the retarded buying of steel is due to fact that the automobile industry is marking time. The recent wave of price reductions unsettled the market. The New York automobile show fell rather flat. Exhibits in the Middle West and the approach of spring may help to enliven the trade.

Has Big Capacity

The industry, however, is confronted with some serious problems. It has a capacity for some 5,000,000 new cars annually, while output in 1924 was only 3,564,096. Nearly 17,000,000 cars are in use and the dreaded saturation point may not be far distant. In any event the huge number of cars in operation complicates the marketing of new ones.

Meanwhile the makers of motor cars have the emergency brakes upon outputs. December production of passenger cars of 182,023 was the smallest number since March 1922. The situation is sound in that excess stocks have not been piled up as last year. As spring demand develops, some companies may find they have overstayed the market for raw materials.

Bethlehem Report Good

News that the iron and steel industry has been waiting for came with the Bethlehem Steel Corp. earnings report for the fourth quarter. It brought evidence that the turn had definitely come for profits. The company's net was 47 per cent ahead of that for the third quarter. This was due to better shipments, and in some measure to better prices.

Outstanding developments of financial significance have included the renewed activity of the stock market, new peaks for wheat, unprecedented January car loadings and the approach of British sterling to 1.2 per cent of par. In the stock market, United States Steel common stock has touched the highest level since 1917.

This advance was partly stimulated by the action of the Corporation in fixing the price of its common stock under its employes' purchase plan at $125. That is the highest level ever established, comparing with $100 one year ago.

The Barometer of Business

Weekly Comparison

	Last week	Week before	One month ago	One year ago	1913
Business failures ..	528	566	370	491	...
Cash Ratio Fed. Res. System %..	78.8	76	70.5	80.4	...
Loan rate, 4-6 mos. N. Y. % ..	3½-3¾	3½	3½	5	4¼
Aver. price 25 industrial shares.	$135.32	$135.13	$132.62	$127.11	$58.19
Aver. price 25 railroad shares ..	$79.38	$79.53	$79.72	$60.35	$82.90
Av. price 40 bonds	$82.92	$82.97	$81.78	$78.56	$93.00
Car loadings week ended Jan. 10 ..	932,807	765,727	956,761	872,023	*840,282
Commercial loans 743 member banks (000 omitted)	$8,260,685	$8,222,019	$8,189,223	$7,774,227	.....

*1920

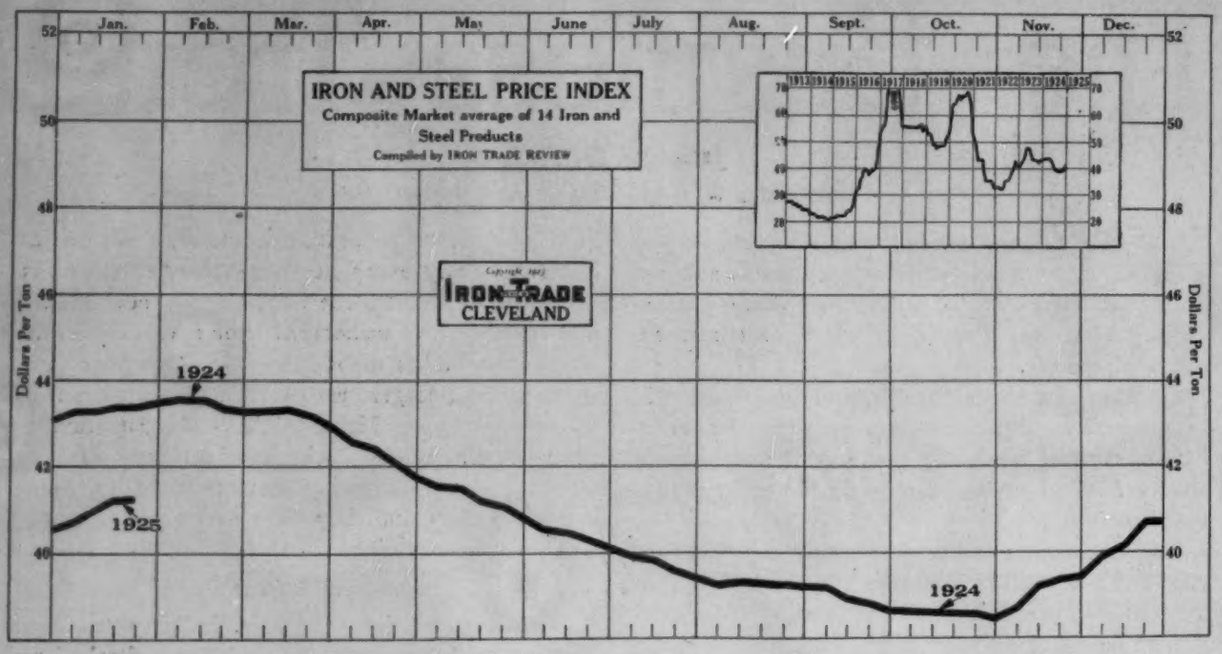
Foreign Exchange (Demand)

	Normal	Last week (close)	Week before	One month ago	One year ago
Sterling	$4.86	$4.79	$4.77	$4.72	$4.23
Francs	19.3c	5.40c	5.39c	5.40c	4.52c
Lira	19.3c	4.12c	4.17c	4.28c	4.34c
Marks	23.8c	23.8c	23.8c	23.8c	....

Monthly Comparison

	Dec.	One Month before	One Year ago	1913 Mo. average
Dodge Building awards in 27 states (sq. ft.)	46,800,000	49,012,200	48,096,000	31,250,000
Business failures:				
Number	2,040	1,653	1,841	1,336
Liabilities ...	$45,279,281	$31,123,281	$51,614,730	$22,732,000
Exports	$443,000,000	$494,000,000	$426,665,500	$233,195,000
Excess of gold imports	**$29,400,604	$13,160,407	$31,929,697	†$630,716
Bureau of labor price index	157	152.7	151	100
Bradstreet's price index	150	146.4	143.6	100
Economist's British price index ..	178.6	178.2	168	100
Nat'l Industrial Con. board living cost index	*165.2	165	165.3	‡100
New incorporations	$734,854,000	$574,096,000	$955,632,000	$49,301,000
Railroad net earnings	*$93,177,560	$127,105,000	$86,720,000	$59,301,000

†Excess of gold exports. ‡July, 1914. *November. **Excess of gold exports.

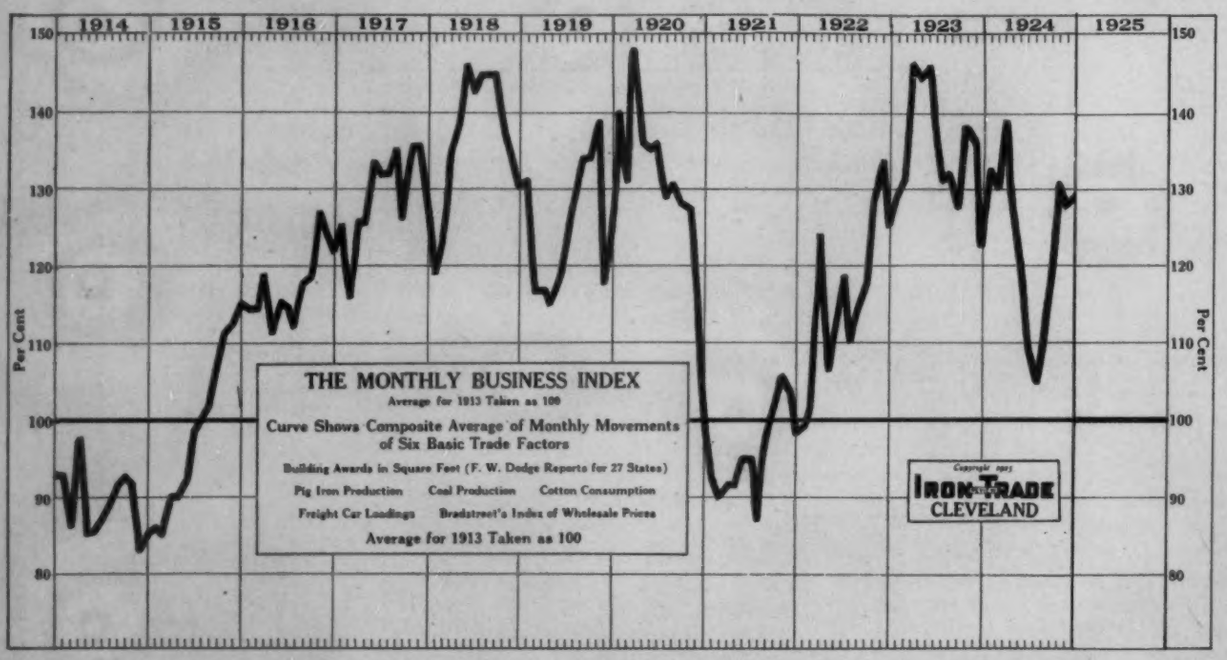

IRON AND STEEL PRICE INDEX
Composite Market average of 14 Iron and Steel Products
Compiled by IRON TRADE REVIEW
IRON TRADE
CLEVELAND
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
Dollars Per Ton
1924
1925
1924

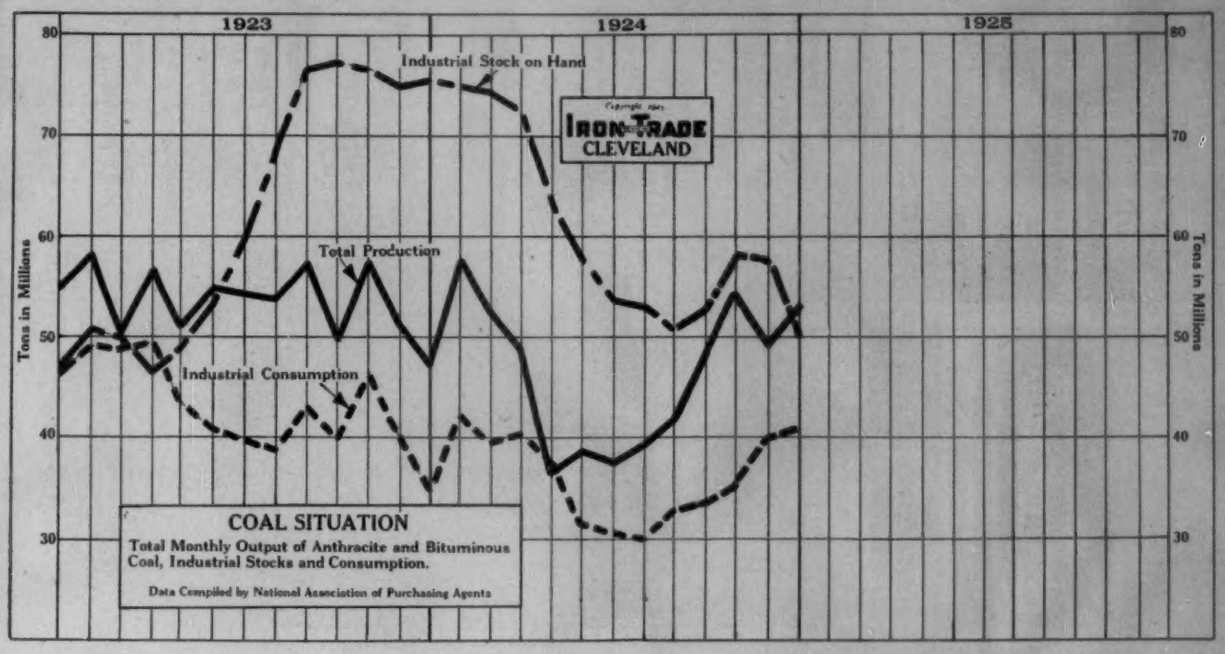
Steel Price Index

IRON and steel prices have entered the year on the upgrade. The composite market average of 14 products was at $41.10 last week. This was 56 per cent above the 1913 average. Prices turned up in the second week of last November when the average had dropped to 46 per cent above the 1913 level. Twelve months ago prices were also advancing and they stood at 63 per cent over 1913. Further moderate advances for steel are probable, though current indications are for steadiness rather than for sharp upturns in quotations.

Business Index

GENERAL trade activities, measured by IRON TRADE REVIEW's *Monthly Business* Trend, held steady at fairly high levels in December. No runaway tendencies are yet exhibited, however. The index stood at 129 for December against 128 for November and 123 for December 1923. Gains were registered for pig iron for the consumption of cotton, for coal production and for Bradstreet's prices. Declines occurred in the cases of carloadings, and building construction. Both the declines were due to seasonal causes.


1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925
Per Cent
THE MONTHLY BUSINESS INDEX
Average for 1913 Taken as 100
Curve Shows Composite Average of Monthly Movements of Six Basic Trade Factors
Building Awards in Square Feet (F. W. Dodge Reports for 27 States)
Pig Iron Production Coal Production Cotton Consumption
Freight Car Loadings Bradstreet's Index of Wholesale Prices
Average for 1913 Taken as 100
IRON TRADE
CLEVELAND

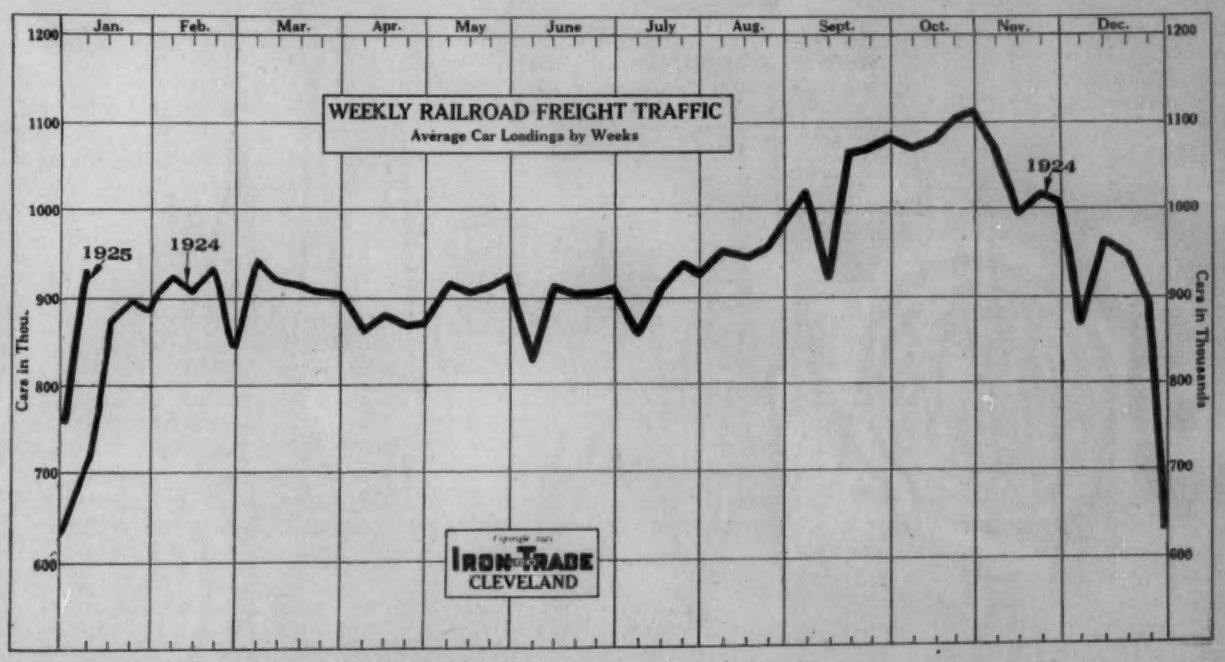


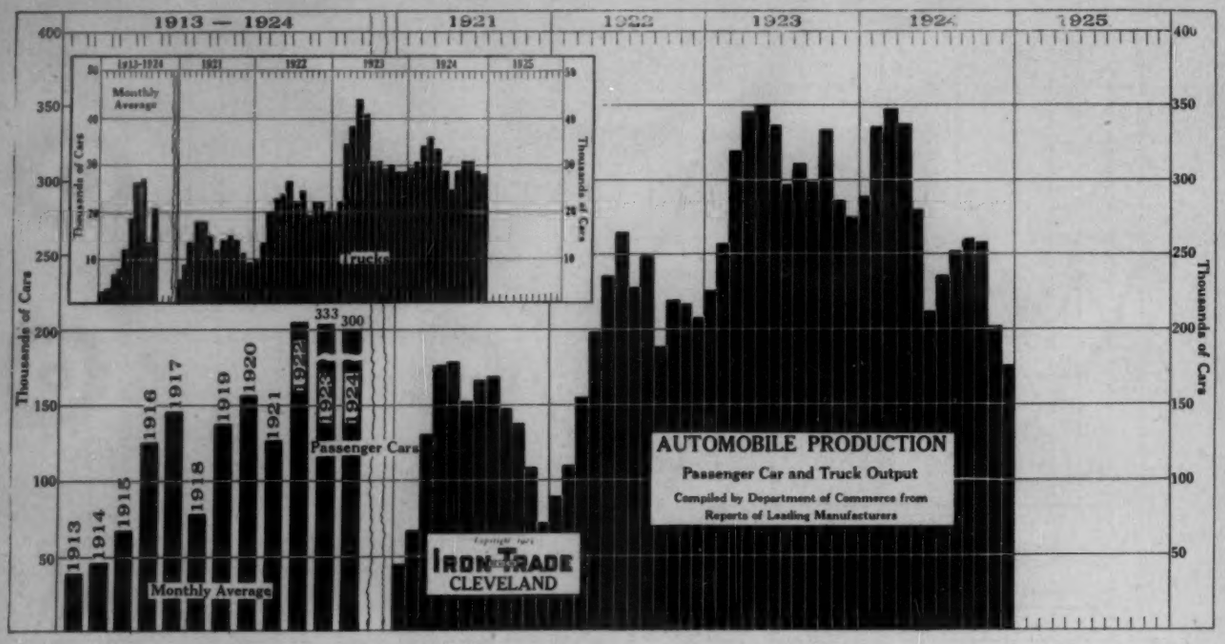
Coal Situation

THE most important fact about the coal industry discovered by the National Association of Purchasing Agents in its December survey, was the 12 per cent drop in stocks. On Jan. 1 stocks of coal on hand at industries amounted to 50,458,000 tons against 57,376,000 tons one month before. Industrial consumption of coal was 40,500,000 tons compared with only 29,887,000 tons in July. Production is increasing, however, and prices show no advance. Output in December was 53,085,000 tons of all coal. January output is the best since 1920.

Freight Movements

RAILROAD executives have predicted that new peaks for traffic would be touched in the early months of 1925. Their forecast was made good in the first post-holiday week of the year, ending Jan. 10. The total of carloadings for that period was 932,807 cars. This compared with 872,023 cars in the corresponding period of 1924. It was the highest volume of loadings ever reached in January in any year. All classes of freight movements increased, particularly grains, coal and general merchandise.



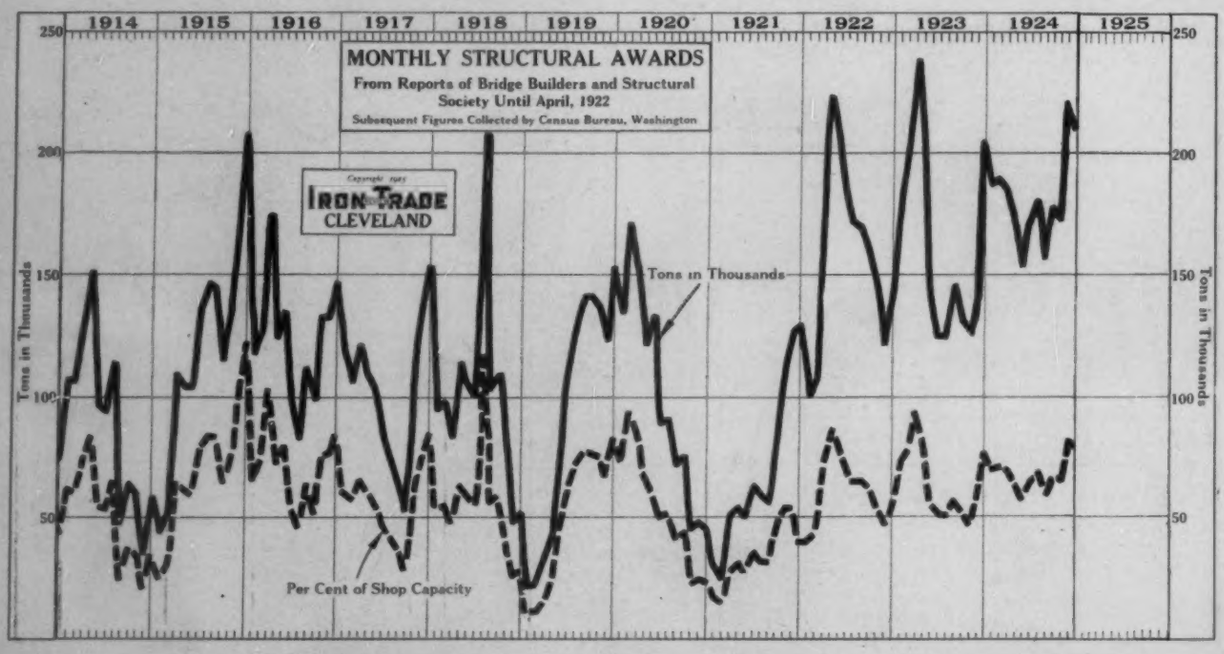


Automobile Production

THE production of passenger automobiles in December was 182,023. That was the lowest number made in any month since March, 1922, when the industry was slowly dragging out of the severe 1921 reaction. The current curtailment is due to the desire of producers to avoid overproduction and keep outputs in step with seasonally slow buying. Total production of cars and trucks was 3,564,091 against 4,000,000 in 1923. Passenger car output dropped 10 per cent. Truck output dropped less than 1 per cent.

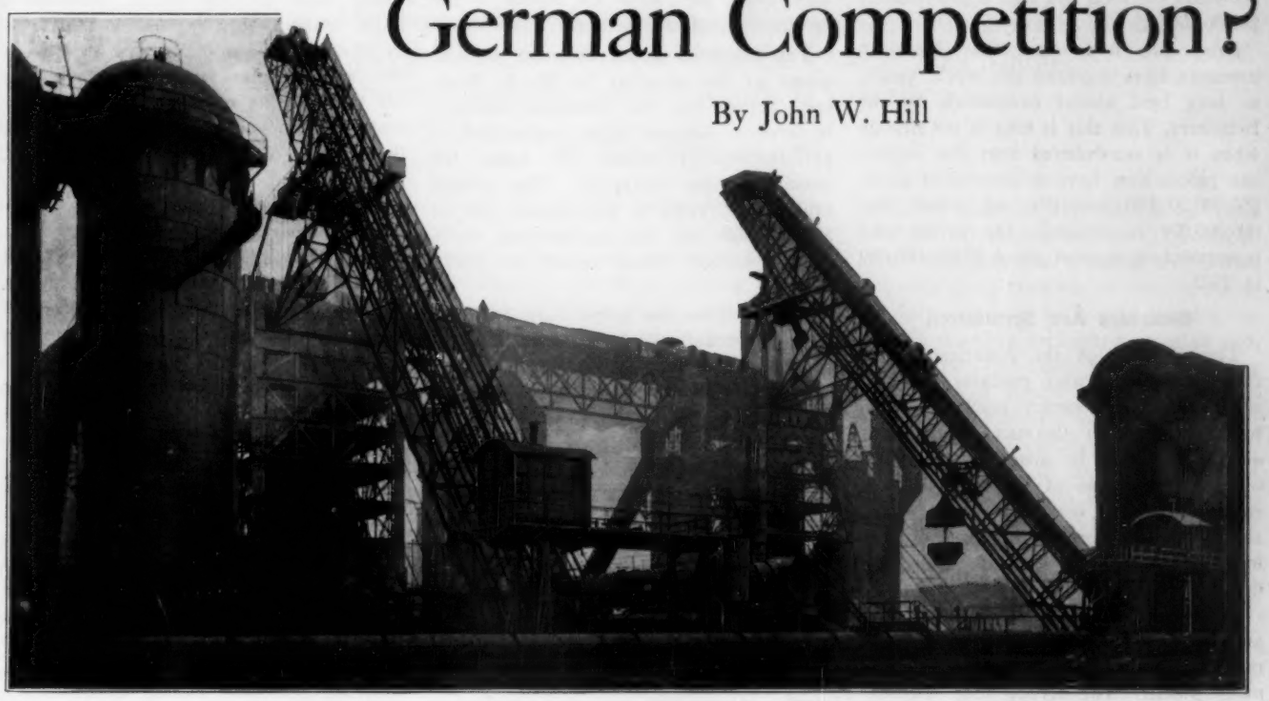
Structural Awards

THE volume of structural awards in 1924 surpassed that of the previous year and was the heaviest ever recorded. The total of actual bookings reported by 192 companies was 2,048,200 tons. In 1923 the aggregate was 1,912,935 tons. In December bookings totaled 195,887 tons compared with 204,741 tons in November. The peak month for 1924 came in November when bookings represented 83 per cent of shop capacity. December was second with 80 per cent of shop capacity. The capacity of fabricators in 1924 was 290,000 tons.



Is United States Financing German Competition?

By John W. Hill



ARE American bankers loading the guns of German industrialists for more aggressive warfare upon business in this country?

This question has been asked repeatedly in industrial circles recently in connection with note and bond issues offered by large German iron and steel works and underwritten and floated in the United States. The first of these issues was that Fried. Krupp, Ltd. and the amount was $10,000,000. The second was that of the August Thyssen Iron & Steel Works, for $12,000,000. Other similar loans are expected to follow.

Those who view the loans with some apprehension point out that Germany's plant equipment is completely modernized. During the inflation period when no other saving was possible everything was poured into equipment, as though in a savings bank. Inflation was the sponge, also, which wiped out the old mark indebtedness. The workers are on hand and wages are relatively low. All that is needed to lubricate the rusting machinery is credit.

According to this reasoning the stage is all set for a vigorous onslaught by Germany in an effort to capture the markets of the world. The credit now being extended by this country will ring up the curtain and start the play. It is true that foreign steel is now being laid down in this country at prices below domestic ones. The amount is not large relative to total requirements, but many believe the volume is sufficient to have a wet cloth effect upon the home market.

Bankers who have studied the situation do not agree that the recent loans will affect in any way the matter of competition. They declare that from the purely financial standpoint, American industry has the edge upon its German competitors. The following two reasons are cited:

1. The 9 per cent or 10 per cent paid by the German companies to obtain the loans is almost double the rate at which a first class American steel company could borrow funds.

2. The Dawes plan puts an underlying mortgage upon all Germany industry, with the result that other loans must be rated as second mortgages and for that reason may not be given first rank as investments by investors.

These facts place the German industries at a competitive disadvantage with American manufacturers from the angle of finance. In addition, the German product must overcome the handicaps of America's tariff wall; of American genius for mass production; and of well-oiled domestic distributive facilities.

Credit Structure Wrecked

The war wrecked the credit structure of Germany. What was left of it was almost completely swept away by the holocaust of postwar inflation. It was because Germany was denuded of credit and lacked a foundation for financial stability that the Dawes plan was conceived formulated and applied. Its purpose was to put Germany in a position to pay her reparations debts.

The first tangible result of the inauguration of the Dawes plan was the flotation of a German government loan for $200,000,000, of which the United States took $110,000,000. That enabled her to stabilize her currency. It primed the pump of reparations. But if the pump was to be kept working it was necessary for German enterprise, all of which is mortgaged for reparations except agriculture, to become active and earn profits.

Before German industry could get a start it required two things. One was raw materials for many of its plants. The other was credit. Industry literally has been starving for working capital in Germany and interest rates have soared to fantastic heights. The amount borrowed by the government gave no direct help to German industries. Its chief effect was to start the Dawes plan in operation and create a basis upon which Germany could have an industrial and economic rebirth.

In order to obtain credit nothing was more natural than that the Krupps and the Thyssens should turn to the great invesment market in the United States. They were encouraged by the favorable reception foreign securities have received

at the hands of American investors in recent years. In 1924, according to one estimate, the amount of foreign securities absorbed here reached $1,600,000,000. In six years the total has been approximately $4,500,000,000.

From this it is clear that American investors have acquired the world vision, so long held almost exclusively by the Britishers. That this is true is not strange when it is remembered that the American people now have an income of about $60,000,000,000 annually, of which $6,000,000,000 is available for saving and investment, as against about $3,000,000,000 in 1913.

Securities Are Scrutinized

The vastness of the American credit reservoir, which also contains one-half of the world's monetary stocks of gold, has attracted the German industrialists and it promises to attract many more of them. Because of the long distance range of these securities bankers are subjecting all foreign applications for loans to the severest scrutiny, before undertaking to underwrite a flotation.

In connection with both the Krupp and Thyssen loans many interesting details concerning those companies were made public. The Krupp loan was described as a "7 per cent 5-year merchandise secured dollar note." Although the reparations mortgage comes first these notes were fortified with such security as this:

"These notes will be issued under an indenture which will provide for the transfer to a trustee, as security for the notes, of merchandise and raw material in salable form having at all times a value at cost or market, whichever is lower, equal to at least 150 per cent of the amount of the outstanding notes. We are advised by our counsel the treaty of Versaillies and the London agreement of Aug. 9, 1924 between the German government and the reparations commission providing for carrying into effect the Dawes plan, do not impose any charge or lien for reparations upon property of the character agreed to be provided as security for these notes."

The announcement of the loan points out that although before the war the Krupp firm was widely associated with the production of war material, yet such production before 1914 did not represent more than 5 per cent of the company's iron and steel tonnage. Since 1919 the company has been exclusively engaged in the production of industrial articles, including rails, locomotives, motors, motor trucks, etc.

Under the terms of the Dawes plan the Krupp company must pay annually an amount not exceeding 6 per cent upon a capital sum not yet determined but which will probably be $7,500,000. The payments start in the year beginning Sept. 1, 1925. The average annual payment required of the company for account of reparations during the life of the notes would not exceed $306,000.

The August Thyssen Iron & Steel Works has borrowed $12,000,000. This loan takes the form of 5-year 7 per cent sinking fund mortgage gold bonds.

The valuation placed upon the physical assets of the company by H. A. Brassert, acting for the American bankers, in terms of German costs, depreciated, is $117,183,000 or almost 10 times the amount of the mortgage. The present replacement value in Germany is put at $165,928,000 and the replacement value in the United States would be $249,946,000.

The company has seven blast furnaces with an annual capacity of 1,500,000 tons of iron annually. Six of the furnaces have been entirely rebuilt in recent years according to the latest American design, says the report of the engineer. The sixth one is now being rebuilt. The steel capacity includes 1,100,000 tons of basic bessemer steel produced by six 30-ton converters and 600,000 tons of open-hearth and electric steel ingots. The converter plant has been entirely rebuilt since the war and the open-hearth plant in part. In his summary of the property, Mr. Brassert says:

"The August Thyssen company have as modern a type of plant as can be found anywhere and I consider them, all in all the most efficient steel manufacturers in Europe. In tonnage the company is one of the largest producers in Germany. About $11,000,000 of its sales can be conservatively figured on for export each year. It shows earnings of $6,500,000 a year, after all charges in which due allowance is made for taxes, depreciation, and reparations as at present estimated."

Both the Krupp and Thyssen loans, according to the announcements by the companies, largely are to provide working capital. That means they are preparing for the battle of the world's trade. In winning markets for herself Germany may tread upon the toes of industries in other countries. But in the long run any disadvantage accruing from her competition will be more than offset by the general benefits flowing from a sane and stable Europe. Nations are rapidly learning they cannot prosper upon the poverty of their neighbors.

Gold Stocks Are Foundation

As Germany and the rest of Europe produce more, they will also consume more, after years of both under-production and under-consumption. The result will be to lift the level of world trade. In any international struggle which may be ahead, the American iron and steel industry undoubtedly will be able to hold its own, just as it did before the outbreak of the great war.

There is still another consideration deserving of mention in connection with the loans to Europe. This country's huge gold stocks have laid the basis for expanded bank loans and have played a major part in the recent tremendous stock market activity and enhancement of values. In loaning money to Europe the country is encouraging drawing off the swelling of gold from its economic body. This should tend to lessen the danger of a disastrous fever and inflamation of inflation. For eventually, credit expansion if it continues, will excite trade as well as securities. This would touch off a spiral of prices and costs which would be an open invitation to European competition. The effect of this policy would be more adverse than moderate competition from Europe started on the road of rehabilitation by the help of our surplus gold.

Structural Steel Output Increases in 1923

Establishments engaged primarily in the manufacture of structural and ornamental iron work, such as girders, columns, trusses, grilles, railings, fire escapes and other builder's iron work reported products valued at $404,924,956 in 1923, an increase of 61.9 per cent as compared with 1921, the last preceding census year, according to data collected by the department of commerce in its biennial census of manufactures. Structural and ornamental ironwork was manufactured to some extent as a secondary product by rolling mills and by some establishments engaged in other industries.

Pennsylvania, the leading state in the industry, reported products valued at $96,267,125, or 23.8 per cent of the total; Illinois was second with $39,315,802, or 9.7 per cent; and New York third with $38,637,151, or 9.5 per cent. The combined output reported by these states was valued at $174,220,078, or 43 per cent of the industry total. Of the 1055 establishments reporting for 1923, 235 were located in New York, 120 in Pennsylvania, 104 in Illinois, 78 in California, 72 in New Jersey, 63 in Massachusetts, 38 in Missouri, 30 in Michigan, and the remaining 315 in 28 other states and the District of Columbia.

Employment in Milwaukee industries is now at least 25 per cent above August, the low point in 1924, 13 per cent below the peak reached in March, last year, and 16 per cent below the 1923 peak, when 35,000 were at work in the 50 typical shops used as a basis for comparisons. The number at work early in January was 30,096, compared with 29,140 in December, and 24,328 in August.

Heat Treating Machine Parts

Carefully Devised System of Routing Material Through the Shop Enables Small Hardening Department To Handle Work for a Large Tool Manufacturer—Case Hardening Practice Is Described

BY E. F. ROSS

MACHINE tools, probably because of their size and intricacy give the impression that a considerable amount of heat treating is necessary in their manufacture. Consequently an observer is somewhat disappointed to find that the heat treating departments of some of the largest and most modern machine tool manufacturing plants seem dwarfed in comparison to other departments. A brief analysis of operations, however, is sufficient to justify this situation. In the first place, the main structural parts of the average machine tool are castings which are purchased and which require no heat-treatment. All other parts of the machine are of smaller size and only such parts as gears, drive shafts, bolts, pins, centers and certain miscellaneous parts are hardened. In the second place, shop routing methods are so carefully arranged that an even flow of material is maintained through the heat treating department, thus a maximum of work may be turned out with a minimum of equipment.

Two classes of work usually are performed in the heat treating shop of a machine tool plant, namely, the treating of tools used in making machine tool parts and the treating of these parts after they are made. The heat treating department of the R. K. LeBlond Machine Tool Co., Cincinnati, is equipped to handle these two classes of work and may be taken as typical of similar departments of other tool plants.

In this case, the heat treating department is housed in a leanto built along one side of the main plant, this location being selected to provide good ventilation and to prevent smoke and heat from penetrating the main plant. The shop is approximately 25 feet wide and 100 feet long. At one end are located two forges, a forge heating furnace, a 900-pound steam hammer, a high speed steel furnace and quenching tanks, all this equipment being used for making and hardening tools used in production work. The equipment used for heat treating the manufactured parts consists of two carburizing furnaces, one hardening furnace, an electric drawing furnace, a cyanide pot, a lead pot, oil and water quenching tanks and a bench for packing and dumping carburizing boxes.

With the exception of the electric drawing furnace, all furnaces burn both oil and gas. The oil system is of the high pressure type and is not suitable for bringing the units up to heat, consequently artificial gas is burned until the furnaces reach a temperature at which the oil burners will operate. Manual control is employed entirely. A 10,000-gallon fuel oil tank is located outside one end of the plant and is refilled by gravity through suitable pipe connections to tank cars on a nearby siding. The oil is kept warm by a series of steam coils inside the tank and as it is needed for fuel it is pumped out by a steam

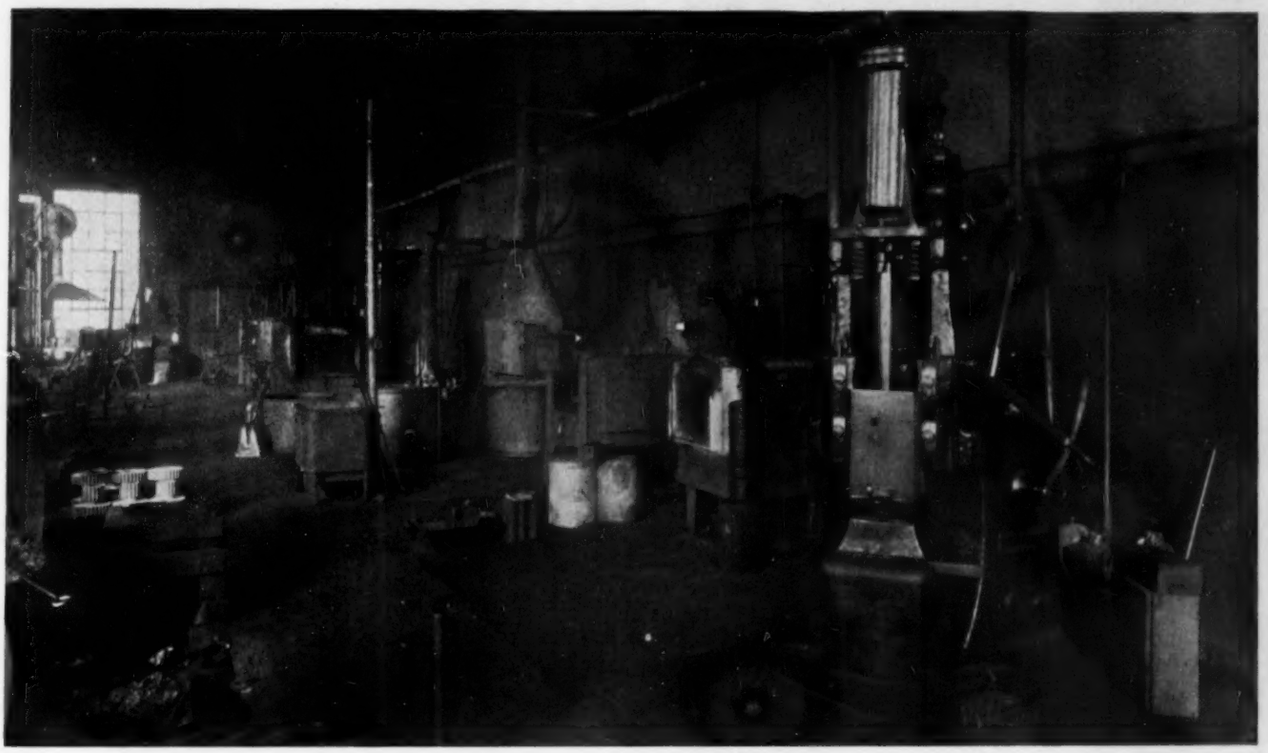


FIG. 1—A GENERAL VIEW OF THE HEAT TREATING SHOP IN THE FOREGROUND ARE SHOWN THE STEAM HAMMER, FORGING FURNACES, ELECTRIC DRAWING FURNACES, CYANIDE POT AND LEAD POT. THE HARDENING AND CARBURIZING FURNACES ARE IN THE REAR

pump located in one end of the shop, at the same time passing through another series of steam coils which bring it up to the proper temperature for entering the burners.

The high speed steel furnace is of the three-chamber type. The drawing chamber is placed directly above the preheating chamber while the high speed chamber is on the right side and about midway between the other two. In handling high speed steel it is important that heating and cooling be uniform to avoid shock. Therefore, work to be heated usually is placed underneath or on top of the furnace to warm up before it is placed in the preheating chamber where it is heated thoroughly to approximately 1500 degrees Fahr. From the preheating compartment, the work is transferred to the high speed chamber in which it is brought rapidly to a temperature of 2350 degrees Fahr. When this point is reached it is quenched in oil. The steel then is placed in the drawing chamber, heated to 1050 degrees Fahr. and allowed to cool in air, care being taken that the tool does not come in contact with any cold objects which would accelerate the rate of cooling. The high speed section of the furnace is small, consequently, when it is necessary to handle tools of unusual size, the preheating side is used for the high speed heat.

Practically all of the production hardening work done in the shop is performed in the hardening furnace located in the middle of the room and shown in Fig. 2. This furnace was built by the Chicago Flexible Shaft Co., Chicago, and burns both oil and gas. It is of the double end type with the heating chamber passing completely through. A thermocouple is placed in each end. Work to be hardened is placed in the back end which operates at a temperature of approximatly 1300 degrees Fahr. As finished work is taken from the furnace, the new work is pulled through to the front end which is maintained at the quenching temperature. This final temperature depends upon the type of steel being treated as does also whether the quench is in oil or water.

After being quenched the work is placed in the electric drawing furnace in which it is heated to a temperature varying from 350 to 900 degrees Fahr. Cooling is in air. This furnace was built by the Eaton Electric Furnace Co., Taunton, Mass. Experience has shown this furnace to register an increase in temperature after the power switch has been thrown, therefore, when work is being drawn the power is shut off just before the desired temperature is reached and the steel is allowed to remain in the furnace until the temperature reaches the given drawing temperature.

The heat treating shop has no crane except a small jib crane used for handling carburizing boxes. It was necessary, therefore, to devise some method for handling heavy work to and from the hardening and drawing furnaces. The apparatus designed is simply a

FIG. 2 (UPPER LEFT)—ALL HEATING FOR ORDINARY HARDENING IS DONE IN THIS FURNACE, THE WORK BEING PLACED IN ONE END AND REMOVED FROM THE OTHER. FIG. 3 (LOWER RIGHT)—THE TWO FURNACES HANDLE ALL CASE HARDENING WORK. AS IN THE CASE OF THE HARDENING FURNACE, BOTH HAVE OIL AND GAS FIRING

long piece of pipe mounted at its center on two wheels in much the same manner as the tongs shown in Fig. 4. One end of the pipe serves as a handle, while the other end is equipped with one of various attachments for holding the different types of gears and other parts. These attachments are changed quickly and at will. Use of these special tongs has been found to be entirely satisfactory and because of their flexibility such placing the work directly in the heating chamber, they have eliminated any need for a crane.

Two furnaces are provided for case hardening, both of which are shown in Fig. 3. The one at the right is of the cylindrical type and was built by the Macleod Co., Cincinnati. The unit at the left is of the usual box type and of larger capacity than the other. It was built by the Tate-Jones Co., Pittsburgh. Both furnaces burn oil and gas, the gas being used only to provide sufficient heat for operation of the high pressure oil. Either one or both of the furnaces may be used, depending upon the quantity of work to be accommodated. This arrangement provides considerable flexibility of capacity.

Parts to be case hardened are packed in the usual carburizing boxes, the bench shown in Fig. 4 being provided for this purpose. In packing the boxes the usual care is exercised to prevent the parts from touching the box or from touching each other. The compound is kept in a bin or compartment located under the bench and is shoveled out as required for packing. As the boxes are packed they are placed on a flat truck of the same height as the level of the furnace bottom so that they may be transferred to the furnace with as little effort as possible. A jib crane at the left end of the bench facilitates handling the boxes.

Test Sample Is Prepared

In case hardening work it is desirable that some guide be provided to determine the progress of the work after a given time. For this purpose, each carburizing box has a small hole drilled in its lid and through this opening is inserted a ⅜-inch pin of the same steel, the end extending down into the carburizing compound. When the operator thinks that the time has been almost sufficient to produce the required depth of case, the pin is removed, quenched in water, reheated to 1500 degrees Fahr., quenched in water and broken to determine the case depth as indicated by the fracture. With this information as a guide the work is allowed to remain in the furnace, which has an operating temperature of 1650 degrees Fahr., for an additional length of time sufficient to produce the required case depth. For ordinary work, the case hardening process requires from 4½ to 6½ hours. The boxes are removed from the hot furnace by means of a special pair of tongs mounted on wheels as shown in Fig. 4 and are placed on the truck which has a steel top.

After cooling, the boxes are dumped on the bench shown in Fig. 4. The carburizing compound falls through a grate and returns to the storage compartment. A hood connected with an electrically driven suction fan quickly removes and exhausts to the air outside all dust which accompanies the dumping of boxes. The work is reheated to 1500 degrees Fahr. and water quenched.

For certain finished parts such as pins, screws, etc., the cyanide hardening process is used. In machine tool construction many small pins are used and it is essential that they be hardened and finished accurately to size to guarantee a close fit. The method at present is to make these pins from "plus hub" stock, or stock having a diameter of 0.008 inch in excess of standard. These pins are cut from this stock and for 30 minutes are immersed in the cyanide pot which is maintained at a temperature of 1425 degrees Fahr. At the end of this period they are quenched in water. The final finishing operation is performed on a centerless grinder which removes just enough stock to bring the pins to the required diameter. Formerly these pins were turned down to finish diameter and then hardened, the process being longer and more expensive.

An objection to the cyanide process of hardening is that the material treated may become corroded if all of the cyanide is not carefully removed, consequently constant precautions must be taken. Screws, for example, which have been placed in stock after cyanide hardening have appeared to be rusted. It was found, however, that if the screws were dipped into a bath of hot water, maintained at close to the boiling point by a jet of steam exhausting into it, all traces of the cyanide can be removed and the screws can remain in stock for months without any trace of rust.

Several oil quenching tanks are located in the shop and they are of the circulating type to provide maximum cooling and contact with the work being quenched. This circulation is supplied by a pump operating in connection with a storage tank located in a covered pit in the center of the shop. The oil in the system is cooled by passing it through a series of water cooled coils.

All work passing through the plant of the LeBlond company is controlled by the production department and each job as it passes from one department to another carries with it a record card. Each department has a rack in which these cards are filed while they are in that department, consequently it is possible to tell at moment's notice the nature of the work in process, the quantity and the date when it is due. By using for this purpose cards of various colors, it is also possible to ascertain quickly whether the job is rush or for stock.

FIG. 4—CARBURIZING BOXES ARE PACKED AND EMPTIED ON THIS BENCH WHICH IS PROVIDED WITH A SHIFTING GRATE AND AN OVERHEAD DUST REMOVER. THE TONGS SHOWN AT THE RIGHT ARE USED TO REMOVE HOT BOXES FROM THE FURNACES

Sponge Iron Produced in Kilns

Iron Ore Mixed with Crushed Coal Is Reduced to a Material of Commercial Value—Close Regulation of Charging Temperature Is Important—Low-Grade Noncoking Coals Give Best Results

BY C. E. WILLIAMS, E. P. BARRETT, AND B. M. LARSEN

IF A piece of iron oxide is reduced completely at such a low temperature that no sintering or fusion occurs, then the piece of metallic iron formed has the same size and shape as the original piece of oxide. On account of the removal of oxygen, the structure is finely porous. A large surface of iron is exposed and the apparent density is less than that of the original piece of iron oxide. This material is called sponge iron. Chemically, it is a reactive material.

The reduction of iron ore mixed with coal on a small scale is a relatively simple process. Nevertheless, it was found necessary to start with laboratory size operations and conduct a long series of experiments on a gradually increasing scale. In this way the work could be intelligently done and difficulties could be isolated and solved separately as they were encountered. The following summary gives the general methods employed and essential results obtained during the development of the process and apparatus finally selected. Early tests were made in an assay muffle by heating 100 to 200 gram charges of ore and coal in closed crucibles. The charges were permitted to cool out of contact with air, and were sampled and analyzed for total iron and metallic iron, from which the percentage reduction of oxide iron to metallic iron could be calculated.

Crucible charges heated at a muffle temperature at 880 degrees Cent. (the temperature of the charge inside the crucibles was probably somewhat lower) gave practically no reduction of the iron oxide. Increasing the muffle temperature to above 950 degrees gave almost complete reduction in about one and one-half hours. A series of tests with varying amounts of coal in the charge showed that for complete reduction the weight of coal must be at least 25 per cent of the weight of ore. This minimum amount would probably vary between 25 and 35 per cent, depending upon the grades of ore and coal used. Variations in fineness of the ore and coal had little effect so long as the materials were crushed to minus 4 or 5 mesh. Larger pieces of ore were reduced more slowly.

High Temperature Caused Fusion

A small gas-fired muffle then was partly filled with 3 to 12-pound charges, consisting of 100 parts of ore and 40 parts of coal. Complete reduction of the iron could be obtained in 10 to 12-pound charges only by four to five hours of heating at 950 to 1000 degrees Cent. The conduction of heat through the muffle walls and charge was slow under these conditions. If the temperature of the muffle walls was raised much above 1000 degrees Cent. to speed up the rate of heating, they tended to slag and fuse with the ore in the charge. Carborundum proved to be the best muffle refractory lining for this work.

A few tests were then made to determine whether this difficulty of heat penetration would increase in a larger muffle furnace. One of a bench of horizontal retorts at a local gas plant was used to treat ore and coal charges of 500 to 800 pounds. The heat result obtained was about 50 per cent reduction after a heating period of nine hours. The temperature outside the retort was about 1100 degrees Cent. but the flow of heat was so slow into this large body of quiet charge that it was impossible to get complete reduction in all parts in a reasonable length of time.

In order to make possible better control of conditions in laboratory reduction tests, an electrically-heated carborundum muffle was then built. Fig. 3 indicates the arrangement employed. The

Abstract of a report of investigations conducted by the United States bureau of mines. The authors, Clyde E. Williams, Edward P. Barrett and Bernard M. Larsen are superintendent and metallurgist; assistant metallurgist, bureau of mines; and junior metallurgist, bureau of mines, respectively, northwest experimental station, Seattle, Wash.

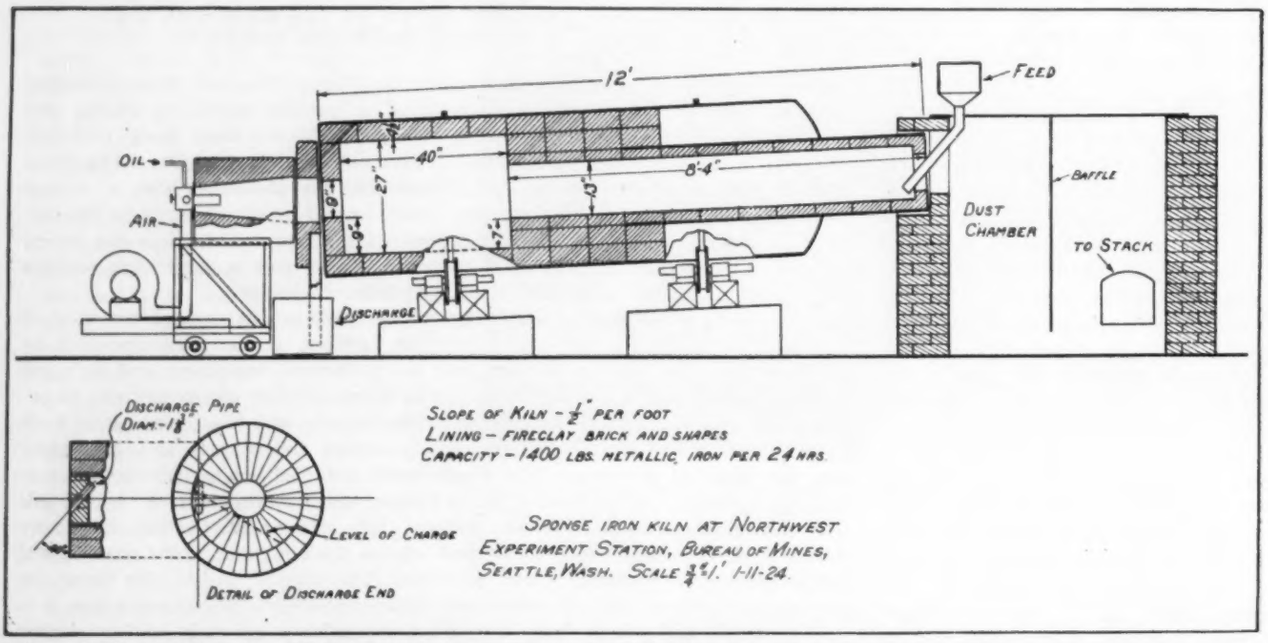


FIG. 1—A TWO-DIAMETER CONTINUOUS KILN USED IN EARLY EXPERIMENTS TO REDUCE IRON ORE TO SPONGE IRON

muffle, molded from carborundum bonded with fire clay and sodium silicate, was surrounded except for the ends with a 3-inch layer of carbon resistor material. The furnace walls were of fire brick. Four graphite electrodes, at the sides, carried in 2-phase current, which generated heat by electric resistance in the resistor material around the muffle. The muffle was 34 inches long, 15 inches wide, and 10 inches high (inside) and conveniently held 140 pounds of charge. A charge was placed in a 3 to 4-inch layer on the floor of the muffle, the front of which was closed by a door during the heating period. One small vent in the door allowed CO and CO_2 gases to escape, and another opening admitted a pyrometer for measuring the temperatures in the charge.

Heat Conduction Is Slow

In the first tests, the charge was left quiet in the muffle but the heat flow into the center of the charge was so slow that reduction was incomplete after 10 to 12 hours of heating. Two pyrometers, 1.5 inches apart, measured temperatures at the top and the center of the charge. The temperature drop being several hundred degrees, even in this comparatively thin layer of ore and coal mixture, indicates that such charges conduct heat with extreme slowness. An opening was then cut in the muffler door, and in subsequent tests the charge was stirred with an iron bar at 10 to 15-minute intervals during the heating period. Under these conditions a temperature of 900 to 1025 degrees Cent. could be maintained fairly uniformly throughout the charge. Practically all of the iron oxide in the charge could be reduced in about three hours after the charge was once heated to reduction temperature. The preheating period added two to three hours to the total time for each reduction test. These tests and later work have all tended to place the minimum temperature for rapid reducing action between iron ores and solid carbon at approximately 875 degrees. Rate of reduction increases with the temperature which can not safely be raised above 1025 degrees Cent. because of tendency of the ore to sinter. Conclusions from the tests made on a small scale are:

1. The permissible temperature range for the reduction of iron ores without fusion, using solid carbon as reducing agent, is about 875 to 1025 degrees Cent., the most desirable temperature being about 950 degrees Cent.

2. The heat conductivity of finely-divided ore-coal mixtures is low. Also, the reduction reactions in such charges are highly endothermic so that a large heat input is necessary. These conditions make rapid heating of the charge almost the first essential factor in the design of a furnace for high producing capacity. As the charge must be maintained at about 950 degrees Cent., the furnace design should be as simple and rugged as possible.

3. Exhaustive experiments have demonstrated that the indirect or muffle-heated type of furnace is less practical than the direct-heated type for the large-scale reduction of iron ores. The rate and efficiency of heating are too low. Furnace design is complicated and the producing capacities of all such furnaces are necessarily low per unit of investment.

The direct-fired rotary kiln operating continuously was chosen as the most promising for large-scale production. In this type of furnace the charge can be heated efficiently and quickly and, due to the simplicity of construction and ease of operation, cost of production should be less than for other types of furnaces. The fact that at the reducing temperature carbon dioxide and oxygen react with carbon to form carbon monoxide encouraged the hope that iron oxide could be reduced in the presence of the products of combustion. In order to obtain information regarding rate of reduction, amount of excess carbon necessary, and other details, a small horizontal rotary kiln was first built and operated on small batch charges. The inside chamber, lined with fire brick, was 19 inches in diameter by 33 inches in length, with an 8-inch opening in each end wall, and had a capacity of 80 pounds per charge. The kiln was rotated at 3 to 4 revolutions per minute. The charge was heated by an oil burner fired into a combustion chamber at one end, the flame passing in through one end opening, directly over the rolling charge of coal and ore. The exhaust gases passed out of the other end and through a dust chamber to the stack.

Reducing Atmosphere Is Maintained

Tests showed that with 40 or more parts of coal per 100 parts of ore in the charge, and the oil flame regulated to give some CO in the gases, strongly reducing conditions existed within the charge, and a 90 to 100 per cent reduction of iron in the product could be obtained consistently. The gases above the charge during the test usually gave CO: CO_2 ratios of from 1:10 to 8:10, all oxidizing to metallic iron, but the atmosphere inside the charge was always strongly reducing; these CO:CO_2 ratios ranging from 3:1 to 12:1 during the reducing periods.

Rapid stirring of the charge, due to rolling of the kiln, and direct contact with the heating gases, gave rapid flow

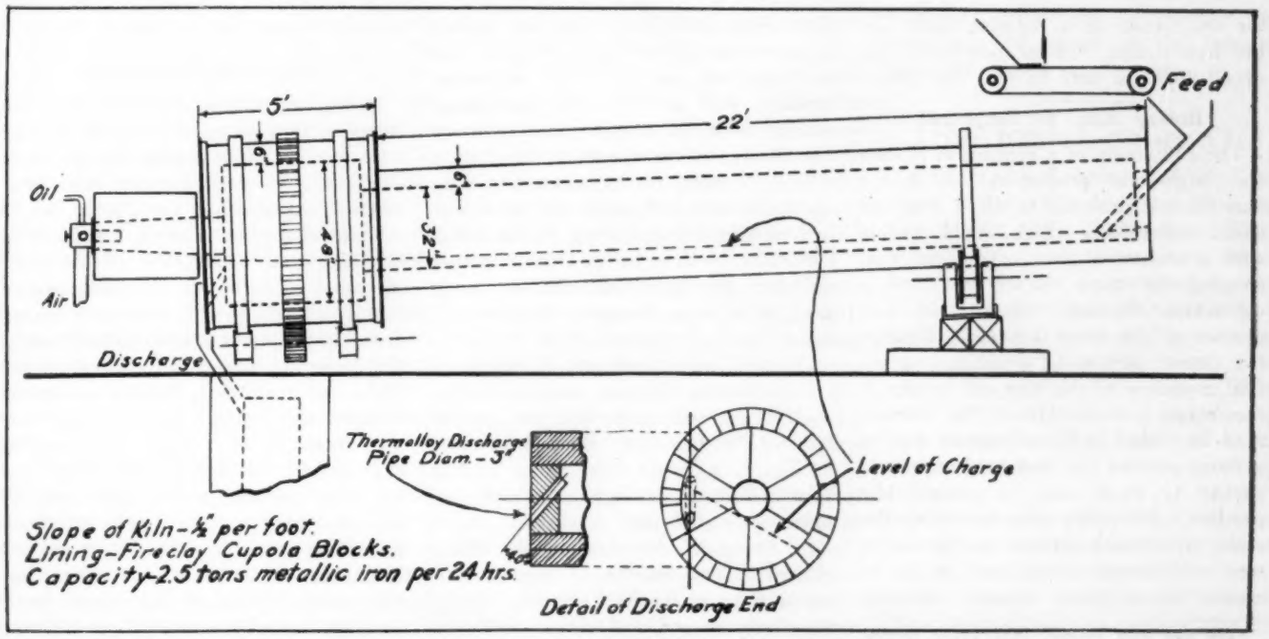


FIG. 2—ROTARY KILN BUILT WITH TWO SECTIONS OF DIFFERENT DIAMETERS AND WHICH OFFERS A SATISFACTORY SOLUTION FOR SUPPLYING SPONGE IRON

of heat into the charge; 80-pound charges could be heated to 900 degrees Cent. in 15 to 20 minutes. To obtain 90 to 100 per cent reduction of the iron, the charge required heating for a period of from 45 to 60 minutes at 900 degrees to 950 degrees Cent. Coal and ores should be ground to minus 4 mesh. Strongly coking coals could not be used in the charge unless partly carbonized before being used, as they tended to flow and coke the charge into a single porous mass in the kiln, making further operation impossible. Low-grade noncoking coals proved to be good reducing agents. Most of the volatile matter in any coal used for reducing agent is driven off before the charge reaches reducing temperatures, so that it takes no part in the reduction reactions. The fixed carbon content is practically the only portion of the coal acting as a reducing agent for the iron oxides. Either powdered coal or oil could be used to heat the kiln.

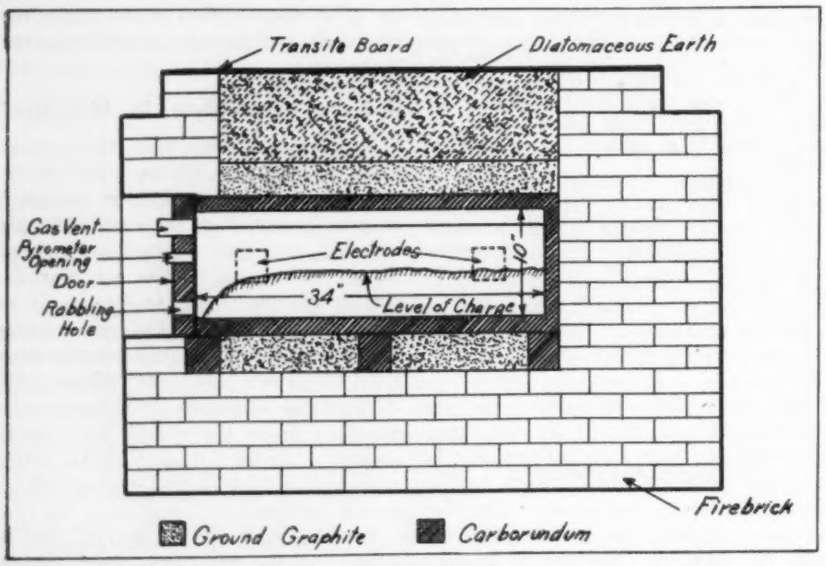


FIG. 3—ELECTRICALLY HEATED MUFFLE FURNACE USED FOR MAKING REDUCTION TESTS ON A SMALL SCALE

Rotary Kiln Is Employed

The advantages of a continuous process for large-scale production of sponge iron made it desirable to use a long, inclined rotary kiln, which would operate with a continuous feed of ore and coal entering the upper cooler end, and a continuous discharge of reduced iron product at the lower hot end. Perhaps the closest parallel in established industrial processes to this type of furnace is the rotary cement kiln. The furnace used by Jones* in his attempt to develop a direct process for steel production was similar to those used in cement kiln practice. From the results of smaller scale experiments obtained at the northwest experiment station and study of cement-kiln operation, however, the temperature gradient in the cement kiln did not appear to meet the metallurgical conditions required for reduction of iron ore.

The temperature range in which iron ores can be reduced by solid carbon without fusion or sintering approximates 880 to 1020 degrees Cent. Below this range the reduction reactions are too slow to be industrially useful, while above it there is danger of sintering and initial fusion of the partly-reduced ore, as well as the sticking of the charge to the furnace lining. Smaller scale tests had shown that the charge must be held in this range from 40 to 60 minutes to give time for the complete reduction of iron oxides before being discharged from the furnace. The period of preheating to this temperature range should be as short as possible. The charge bed is of uniform depth through the kiln, and heating is approximately uniform. Suppose that a charge of ore and coal is passed through such a kiln. If the charge reaches reduction temperature far above the burner end of the kiln, then before it is discharged, the temperature will be above the reduction range, and the charge will start to fuse and sinter on the lining. Obviously, sufficient time under proper reducing conditions can not be maintaied in a large charge in such a furnace.

On this basis, therefore, a two-diameter continuous kiln was designed. After a period of experiment with two smaller kilns of this type, one of which is shown in Fig. 1, a larger kiln, shown in Fig. 2, was built as a single unit, with two sections of different diameters. A 6-inch lining of fire-clay cupola blocks is used in both sections. The whole kiln has a slope of 0.5 inch per foot toward the discharge end, and rotates at 2 revolutions per minute. The charge of ore and coal, ground to minus 6 mesh, enters the upper end and passes rapidly in a thin bed of 2 to 3 inches through the 22-foot preheating section. During this preheating period of 15 to 20 minutes, the volatile matter of the coal and the moisture in the charge are driven off, and the charge enters the enlarged section at approximately 900 degrees Cent., with 3 to 5 per cent of its iron reduced to metal. In the enlarged section the charge layer is 13 to 15 inches deep. Maintained at a nearly constant temperature of 900 to 1000 degrees Cent., the charge remains in this section for about one hour, during which period the reduction of the iron oxide is completed.

The reduced product is discharged continuously through a 3-inch pipe, which passes at an angle through the end wall into a cooling chamber below the furnace. This method of discharge, shown in Fig. 2, is an important detail. Each time the pipe passes that portion of the kiln covered by the rolling charge (the charge level is shown by dotted line), about 4 pounds of charge flows through. This furnace is heated by a fuel-oil burner, fired directly into the center opening in the lower end of the kiln. Oil consumption is about 2.5 to 3 gallons per hour.

The cooled product contains a large quantity of excess carbon and coal ash, which is removed on a magnetic separator. The sponge-iron concentrate formed was used to precipitate lead from an acidified brine solution. The charge to this furnace could be kept at 800 to 900 pounds per hour, with a discharge of about 500 pounds per hour. The capacity of the furnace was 3.5 tons of metallic iron per 24 hours of a concentrate containing 80 per cent iron, and with 90 to 97 per cent of the iron reduced to the metallic form.

Large Coal Ratio Used

It has been found necessary in these larger continuous furnaces to use a large ratio of coal in the charge. In the large kiln equal parts of hematite and bituminous coal made up the charge but 25 per cent of the coal was recovered. With this high coal content the oil for heating could be burned to complete combustion with no danger of reoxidizing the reduced iron. A large coal content lessens the danger of fusion and sticking of the charge to the lining, besides preventing reoxidation if strongly oxidizing gases are present above the charge. In a smaller experimental continuous kiln the coal has been reduced to 75 parts per 100 of ore, using a partly reducing flame by taking care to exclude excess air from the oil burner. In a large furnace with a deep ore bed, made nearly air-tight and with some CO in the combustion gases from the oil, the coal in

*The New Step Process, IRON TRADE REVIEW, Nov. 6, 1908, page 771.

the charge could probably be reduced to 60 parts or less per 100 parts of iron ore, at the same time recovering some carbon from the discharged product.

Magnetic Separator Used

Assuming nearly complete reduction of the ore in a charge that has passed through the sponge-iron kiln, the product will be a mixture of metallic iron with gangue of the original ore, and excess carbon and ash from the coal. To separate the metallic iron from this mixture, the obviously practical method is that of magnetic concentration. In the experimental work, all products have been concentrated on a dry magnetic separator, in which the feed passes on a belt under revolving magnets which pick out the magnetic sponge iron and leave most of the nonmagnetic impurities to pass into a tailing product. The feed to the separator will usually contain 35 to 65 per cent of iron, depending upon the grade of ore and the amount of coal used in the charge. The concentrate usually contains less than 1 per cent of carbon and 65 to 90 per cent of iron, varying with the grade of ore treated. The tailing is high in ash, with 20 to 60 per cent of fixed carbon, and 4 to 8 per cent iron. Under proper conditions the loss of iron in the tailing can be kept below 2 or 3 per cent.

In relation to the concentrating problem two classes of impurities are found in the mixture resulting from reduction tests. The excess carbon and the coal ash are separated mechanically from most of the metallic iron, and can be eliminated almost completely by dry magnetic separation. Part of the gangue material of the ore, however, is left more or less intimately distributed through the metallic iron, and is not removed by the foregoing method. From 60 to 100 per cent of the gangue in the ore treated ordinarily is left in the sponge-iron concentrate. During the operation the magnetic concentration of the product proceeded smoothly with practically no attention from the operator. The expense of the operation may be considered limited to the interest, etc., on the initial investment plus a small current charge.

The product must be cooled before concentration, and because of its low heat conductivity, will cool slowly without special treatment. If the product is discharged through a closed pipe and passed through an inclined rotary steel cylinder running in water, efficient and rapid cooling action should be obtained. With proper mechanical equipment cooling and concentration of the product may be entirely automatic. The danger of reoxidation at this stage is a minor factor.

If the product is not actually showered through a stream of air until after it is cooled to a low red heat, no appreciable reoxidation of the metallic iron will occur.

Summary

1. The rotary kiln has proved to be simple in construction and operation, giving consistently good results in large-scale continuous production. It is well adapted to reasonably small units. For the problem of supplying sponge iron for chemical uses this furnace offers a satisfactory solution. Its importance in the problem of direct steel production will be largely dependent upon future developments.
2. In a plant properly designed for mechanical handling of all materials, the labor costs should be low, with but one skilled man needed to operate the kiln.
3. The close regulation of charge temperatures near to the range of 925 to 950 degrees Cent. is important to smooth, continuous production.
4. The charge of ore and coal crushed to pass an 8-mesh screen must be held in the reducing zone for a period of 40 to 60 minutes to obtain complete reduction; dense magnetite requires a longer time than hematite.
5. All types of oxide iron ores may be reduced to produce sponge iron. No phosphorus can be eliminated, but part of the gangue and sulphur contents of the ore may be removed in the process. Low-grade coals are found to be good reducing agents.
6. Cooling, magnetic concentration, and delivery of sponge-iron concentrates, averaging 70 to 90 per cent total iron, to the point of use may be made entirely automatic at low handling costs.

Use of Industrial Gas Gains 1000 Per Cent

The gas utilities of the United States sold 405 billion cubic feet of manufactured gas in 1924, according to figures made public by the American Gas association. This is an increase of 20 billion cubic feet over 1923, and a six-year increase of 100 billion cubic feet.

Steady expansion of plant and distribution facilities during 1924 enabled the companies to connect 440,000 new customers to their lines, making a total of 10,240,000 customers as of Dec. 31, 1924, the association states. Total population served by gas is in the neighborhood of 52,000,000.

Unprecedented use of gas in industrial heating processes is chiefly responsible for the large increase in sales in recent years. During the last ten years the industrial use of gas jumped 1000 per cent and indications are that 1925 will establish a new high record in consumption.

In the meantime, household use of gas has been making steady increase. Sales of merchandise last year by gas companies alone was about $50,000,000. More than 800,000 ranges, 450,000 water heaters and 500,000 space heaters were connected to lines.

To Test Material for Wire Fencing

Demonstrations to show the wearing qualities of different grades and kinds of wire used in wire fences are being conducted during January in Wisconsin under the direction of I. M. Wright, secretary of the Farm Bureau Federation Co-operative. The amount of zinc on different wires varies considerably, it is stated, and the Presse test will be applied to samples provided by farmers. The test consists of dipping wires for minute intervals in a standard copper sulphate solution and the classification is made on the basis of the number of dips they will stand without copper plating. The stripping test also is used. This consists of removing the zinc coating by a weak acid and determining by weighing the amount removed.

Library Service Is in Wide Demand

The Industrial Relations library, which was established at Princeton university two years ago by a gift of $12,000 a year from John D. Rockefeller Jr., has come to fill a broad field of usefulness. Requests are being received by the library from all over the world from industrial organizations, labor unions and other bodies, for information on such subjects as stock ownership, profit-sharing plans, pension system savings plans, unemployment benefits, group insurance, suggestion schemes, medical service for employes, mutual aid associations, co-operative stores, recreation activities for employes, house organs, safety campaigns, and methods of preventing unemployment. Prof. Robert F. Foerster, formerly of the economics department at Harvard university, is in charge of the Industrial Relations library at Princeton.

Iron from Copper Ore

Engineers and chemists of the Ducktown Copper Co. and the Tennessee Copper Co., of Chattanooga, Tenn., working in co-operation, have devised a process for the recovery of iron ore from the copper ore mined near Chattanooga, it is announced. The new process, it is stated, will serve to increase the profits of the copper industries in the South, due to the fact that heretofore the iron ore in the copper ore could not be recovered profitably.

The ore mined by these two companies has contained about 35 per cent of iron, as does most of the copper mined in the southeastern territory. The process used to recover the iron ore is flotation, and the ore is sintered.

Reducing Speed by Gear Sets

For Straight Line Reduction, Plain Spur, Planetary and Nonplanetary Types of Speed Reducers Are Employed—Torque and Speed Are Inversely Proportional, Disregarding Frictional Losses

THIS is an era of high speed prime movers. The turbine with its high revolutions per minute is far more efficient than the low speed engine. The small high speed motor is more efficient, just as powerful and less costly than the larger one of slower motion.

Because industries are eager to adopt these more efficient units, the problem of speed reduction is more significant than it has ever been. The solution of this problem calls for a compact, efficient device that will permit the use of the high speed units with their economy, and step down the rate of revolutions to a practical degree. Pulleys and belts, chains and sprockets, rope drives, open gearing, or any combinations of these are methods of speed reduction found in practically every industry. While they possess certain individual merits, they also have serious objections. Since the maximum practical ratio for belt drive is 6 to 1 and that of chain or spur gear is 8 to 1, it is evident that great reduction is only possible by the use of a series of reducing units. In order to meet the demand for a speed reducer that will meet all general purposes, permit the use of the efficient high speed prime movers, and still not possess the disadvantages of the prevalent methods, a number of companies have developed a unit known generally as a speed reducer. These reducers represent considerable progress in their field. They are compact and safe, classified according to design. There are four kinds:

1. Worm
2. Plain spur
3. Planetary
4. Nonplanetary

Worm gearing is a common method of securing high speed reductions between shafts which are at right angles to each other. Both the worm and gear are entirely encased and run in an oil bath.

The worm is generally integral with the high speed shaft. The difference in elevation of the high speed shaft and the low speed gear shaft is the center to center distance between the worm and gear. Satisfactory transmission is best obtained when the gear is of bronze and the worm of a case hardened low carbon steel. The controlling factor governing load capacity of any worm gear transmission is the heating effect rather than the strength of the gear teeth.

When the gear is overloaded the temperature often increases to such an extent that the oil becomes too thin to lubricate properly, resulting in excessive wear.

The worm type of reducer is a satisfactory unit within its capacity and should not be used to carry loads at speeds for which it is not originally designed.

The most used forms of speed reducers are those that reduce in a straight line, the low speed shaft being to all outward appearances a continuation of the high speed shaft. There are three types of design of this kind of reducers: Plain spur, planetary and nonplanetary. Each of these types is totally enclosed in a cast iron case consisting of a housing and two head plates. These vary in design, depending upon the particular construction of the unit and the use for which it is included.

The plain spur gear type of reducer consists of a series of spur gears, each revolving about its own center. The high speed pinion meshes usually with three idler gears making contact at 120 degree points of the pinion. Integral with each of these gears, or better yet, keyed to the same shaft is another smaller gear which in turn drives a larger gear, making contact at 120 degres points of the larger gear. This large gear is keyed to the slow speed shaft. Any reduction required may be attained by proper gear ratios, or by making series combinations of the unit just described. Fig. 1 shows the relationship of gears of this type. Pinion *A* is high speed, being keyed to a shaft which is coupled to the motor. It meshes with the three larger gears *B*, bringing a reduction dependent upon the gear ratio. Gears *C*, moving at this reduced speed further meshes at three contact points with *D* for further reduction. Essentially there are five units to this single stage reducer; namely the high speed shaft and pinion, three countershafts each carrying a large and small gear and the slow speed gear with its shaft. A reducer of this type, although there are two reductions, is known as a single type. The double reducer has a larger case with a partition between two stages, similar to one just described. These stages are connected in series. In this type of reducer the principal loads are subjected to the countershaft journals as a result of the tooth thrust on the gears *B* and *C*. The third class of speed reducers belong to the planetary type. Like those in Class II, they are straight line reducers, using not only plain spur gears but employing also an internal gear.

Fig. 2 shows the working mechanism of a single stage reducer of this type. Here, as before, the high speed pinion *A* meshes with the three intermediary gears *B*, which are journaled on stud-like shafts that protrude from a heavy plate *D* which is integral with, or keyed to, the low speed shaft. As the three intermediary gears *B* rotate about centers they mesh with a stationary internal gear *C*. This causes the entire unit consisting of the three intermediary gears, the plate in which they are journaled, and the low speed shaft, to rotate. Greater

New Requirements Were Imposed; Speed Reducers Met Them

EXCEPT in rare instances, no important change in mechanical equipment can be made without affecting the design of a long train of accessories. This has been true in the development of devices for transmitting power.

WHEN low speed motors and reciprocating engines were in wide use in industry, open gearing and various other types of transmission were considered adequate for stepping down the speeds to the desired rate for driven shafts. Within the past decade, higher speeds of prime movers have been the rule. Efficiency has brought high speed motors, turbine and internal combustion engines to the fore, and consequently has imposed a more complicated speed adjustment problem.

SPEED reducers have been developed to fulfill these new requirements. Efficient, compact and safe, they have won an important place in modern mechanical transmission. The accompanying article tells the story of gear reducers in language that can be understood by nontechnical readers.

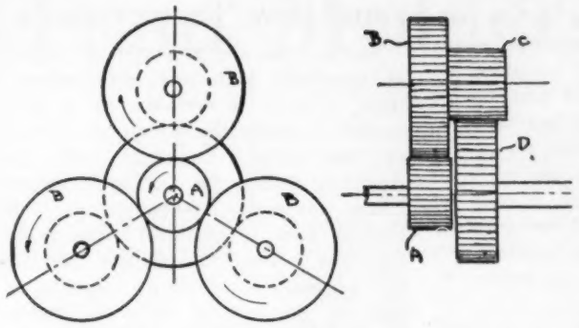


FIG. 1—GEAR ARRANGEMENT IN PLAIN SPUR TYPE OF SPEED REDUCER

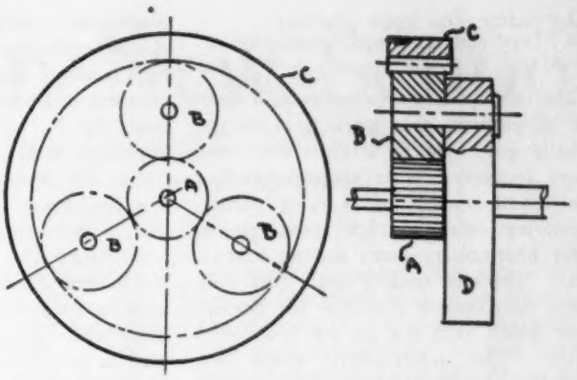


FIG. 2—ARRANGEMENT OF GEARS IN PLANETARY TYPE OF SPEED REDUCER

speed reduction is obtained by making series combinations of this single stage.

The fourth general classification of gear reducer is generally known as the nonplanetary type and possesses certain advantages. The general principles upon which it is based is shown in Fig. 3.

Here as in the planetary type the small high speed pinion makes three-point contact with three intermediary gears which, in turn, make three-point contact with an internal gear. In the nonplanetary type, however, the intermediary gears *B* are journaled in the frame and the internal gear *C* is free to move. For further reduction, series combination of this unit are employed with partitions between each member of the series in which the intermediary gears are journaled.

An analysis of the three general types of straight line speed reducers indicates certain characteristics common to all types and certain particular properties that make each distinctive. The common characteristics possessed by all three classes of reducers are:

1. Straight line reduction
2. Two reductions in a single stage
3 The use of three intermediary gears driven by the high speed pinion.

Each particular type, however, is unique in itself. As seen in Figs. 1, 2 and 3, pinion *A* is subjected to the same forces in all the types, the forces being applied at 120 degree points. Assuming the horsepower being transferred is the same, and the pinions are of equal size, each pinion is subjected to three forces and equal magnitude. The task of a speed reducer is to deliver high speed power at lower speed. Theoretically, there is no loss of horsepower in this transformation. Actually, there is very little. The formula for horsepower illustrates exactly what change is made in the reduction of speed.

$$(1) \qquad H = \frac{P \pi D N}{33000 \times 12}$$

where H is horsepower; P is load in pounds; D is diameter in inches and N is revolutions per minute.

Torque is expressed by the formula

$$(2) \qquad T = P \frac{D}{2}$$

Therefore, substituting equation 2 in equation 1

$$(3) \qquad H = \frac{\pi T N}{33000 \times 6} = \frac{T N}{63025}$$

$$(4) \qquad T = \frac{63025\ H}{N}$$

Solving the equation on the basis of power input is equal to power output (theoretically correct) the relationship expressed by equation 4 may be reduced to an even simpler form

$$(5) \qquad H = \frac{T N}{63025}$$

$$(6) \qquad H_2 = \frac{T_2 N_2}{63025}$$

where T is torque at high speed; N is high speed revolutions per minute, T_2 is low speed torque; H_2 is low speed revolutions per minute, but

$$H = H_2$$

$$\frac{T N}{63025} = \frac{T_2 N_2}{63025}$$

$$T N = T_2 N_2$$

$$(7) \qquad \frac{T}{T_2} = \frac{N_2}{N}$$

Equation 7 indicates that the torque and the revolutions per minute are inversely proportional when frictional losses are disregarded.

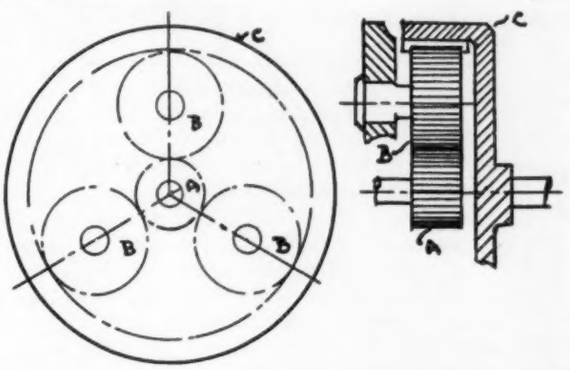


FIG. 3—ARRANGEMENT OF GEARS IN NONPLANETARY TYPE OF SPEED REDUCER

Equation 4 indicates what occurs when the speed is reduced. H, the horsepower, is a constant. Diminishing the denominator N, therefore, means an increase in torque, T. If the low speed shaft rotates at 1/100 the high speed shaft the torque is increased 100 times by the speed reduction.

Referring again to equation 2, we find that T is a function of the load and the diameter. If the load be applied at a short radius to give a certain torque, it must of necessity be larger than if applied to a greater radius. So great does this torque become upon great speed reduction that the three point application of load, found in all the types of reducers, is necessary to keep down the tremendous size of a single load.

The nonplanetary type goes a step further in this respect by making the torque radius as large as possible. The final reduction is accomplished by the intermediary gears driving the internal gear. Since the load is applied in three points on the internal gear each force is a one-third component of the entire and the entire is the least possible because it is applied at the greatest possible radius at the pitch circle of the internal gear.

The planetary type does not fully utilize this advantage as the true final propelling is accomplished by the reaction in the journals of the intermediary gears that force the rotation of the plate *D* in Fig. 2. The force arm in the plain spur gear type of reducer is the pitch radius of the gear *D*, which is less than the arm of either of the other two types. To determine which type of design of speed reducer is the superior, it is logical to list the requirements of speed reducers in general, and the type that best fulfills these requirements is perhaps the best in design. Speed reducers claim their place as a superior form of transmission on the following basis.

1. Reduction of speed possible.
2. Compactness, (small space required).

3. Safety (no open gearing).
4. Dirt and dust proof (entirely enclosed).

The nonplanetary type possesses a number of elements that mark it as an unusually good type of straight line drive speed reducers. It is simple, requiring the fewest number of working parts—employing only the high speed, pinion, three intermediary gears and an internal gear. The intermediary gears turn only about their centers and drive the internal gear which is keyed to the low speed shaft. The intermediary gears are journaled in the frame. The greatest force is developed at the final reduction, when the torque is greatest, which is at the three points where the intermediary gears drive the internal gear. The lever arm is then the greatest, the pitch radius of the internal gear, which makes the load on the gear teeth as small as possible. Besides possessing these qualifications it is compact.

New England Founders Elect Officers

R. F. Harrington, metallurgist of the Hunt-Spiller Mfg. Corp., Boston, was elected president of the New England Foundrymen's association at the annual meeting at Boston, Jan. 14, to succeed Norman Russell, vice president of Albert Russell & Sons Co., Newburyport, Mass. Nearly 300 members attended the meeting which marked the 29th anniversary of the association.

Other officers elected were: Vice president, H. P. Blumenauer, president of the Arcade Malleable Iron Co., Worcester, Mass.; treasurer, George H. Gibby, Gibby Foundry Co., East Boston; secretary, Fred F. Stockwell, Barbour-Stockwell Co., Cambridge, Mass.

The new executive committee consists of H. S. Chaffee, Builders Iron Foundry, Providence, R. I., Thomas E. Officer, Sullivan Machinery Co., Claremont, N. H.; Carl H. Neunan, Union Mfg. Co., New Britain, Conn.; Thomas I. Curtin, Waltham Foundry Co., Waltham, Mass., and C. A. Reed, Reed, Fears & Miller, Boston. Professor G. W. Dyer of Vanderbilt university, Nashville, Tenn., addressed the meeting on the subject of economics, leadership and foundries.

Sponsorship Is Accepted

Sole sponsorship for the standardization of taper pins, straight pins, split pins, dowel pins, plain washers and lock washers has been accepted by the American Society of Mechanical Engineers and a sectional committee is being organized to carry on the work. The subject was brought to the attention of the American Engineering Standards committee by the acting chief of ordnance of the war department. Sponsorship was offered to the mechanical engineers and acceptance was made by its council. All societies, associations and government departments which are known to be interested in this project are being asked to appoint official representatives on the sectional committee. The American Society of Mechanical Engineers will welcome any information relative to the subject, the importance of which is recognized by manufacturers of machines.

Metal Trades Association Reports Good Outlook

Replies to inquiries sent by the National Metal Trades association to a selected group of stable, standard plants have been summarized by the association as follows:

What are the general business conditions in your own establishment, and in your particular line?
Answers—Mostly "fair" or "good."

What is the outlook for 1925?
Answers—Generally "good."

On what do you base your opinion?
Answers—Chiefly confidence in the administration, in our basic economic soundness, business inquiries, orders and trade contacts.

What are the general labor conditions in your plant and in your vicinity?
Answers—Indicate a generally "satisfactory" condition.

Is there a scarcity of skilled and semiskilled labor? If so, what are you doing to increase the supply?
Answers—Signify an adequate supply of semiskilled help, but not a surplus of skilled workmen.

Is there a shortage of common labor?
Answers—Almost unanimously, "no."

Suppose there was a universal demand in industry for a 10 per cent increase in working forces; how would you meet such a demand in your community?
Answers—Vary greatly.

Officers Are Elected

C. C. Dornbush of the structural sales department, Jones & Laughlin Steel Corp., Pittsburgh, was chosen chairman of the civil section of the Engineers' Society of Western Pennsylvania, at the annual meeting at Pittsburgh, Jan. 13. Other newly elected officers are: Vice chairman, V. R. Covell; directors, C. S. Davis, R. P. Frosberg, Alexander Dann, J. B. Laboon and Richard Irvin. Following the business section, James S. Martin, structural engineer of the Philadelphia Co., Pittsburgh, gave an illustrated talk on "Safety and Construction—Standards for Transmission Lines."

To Study Metals at High and Low Temperatures

Research on the properties of metals at extremely high and low temperatures is to be undertaken by a joint committee from the American Society of Mechanical Engineers and the American Society for Testing Materials. Little authentic information on this subject now is available. Objects of the new research committee will be to accumulate existing unpublished data on the subject; to make studies leading to standardization of the procedure for listing materials at high and low temperatures; and to outline and foster new research work in this field. George W. Saathoff, chief construction engineer, Henry L. Doherty & Co., New York, is chairman of the joint committee. Other members are George K. Elliott, Lunkenheimer Co., Cincinnati; H. J. French, bureau of standards, Washington; John B. Johnson, army air service, McCook Feld, Dayton, O.; V. T. Malcolm, Chapman Valve Mfg. Co., Indian Orchard, Mass., John A. Mathews, Crucible Steel Co. of America, New York; and La-Vergne W. Spring, Crane Co., Chicago.

South Seeks Meeting of Ceramic Society

At a meeting of ceramic engineers and manufacturers of brick and clay products in the Southeast, held recently in Atlanta, Ga., a campaign was launched to secure the 1925 convention of the American Ceramic society, due to the recent opening of the new school of ceramic engineering at the Georgia School of Technology, Atlanta. This is the first school of its kind in the South.

If the convention is secured, the delegates will be taken to the important clay producing belt of Georgia and Alabama, where the most extensive clay deposits in the United States are found, including large quantities of white kaolin particularly suitable for refractory purposes. The 1925 convention city for the American Ceramic society will be decided upon at a meeting of the board of trustees at Columbus, O., Feb. 16.

Internal stress in gage steel generated on quenching recently was studied theoretically and experimentally on one type of steel by the bureau of standards. According to the findings wear resistance appears to increase with quenching temperature so that if means can be found to avoid cracking when a high quenching temperature is used, the wear should be decreased.

Train Molders in New School

Proficiency in Handling of Shovel and Other Tricks of Trade Give Way to New Criterions of Foundrymen's Skill—Changed Methods Affect Training Program

WHILE the basic principles of training young men for foundry work remain the same, methods of teaching have changed to meet new conditions in the industry. Items in the apprentice's course of education that once were deemed of paramount importance now are relegated to second place or omitted altogether in vocational schools today.

Under the old dispensation, an experienced foundryman could appraise a new man to a reasonably accurate extent by the manner in which he started a job. Inside of an hour on the morning of the first day he had the man cataloged in his mind as poor, fair or good and only rarely did he have to revise his opinion as a result of later and further observation. He based his opinion primarily on the manner in which the molder handled his shovel in cutting over the sand pile. Precision, speed and skill in handling this humble instrument was regarded as a cardinal principle in the education of an apprentice molder. In fact he was constantly reminded of its importance both by the foreman and by his fellow workmen. Emulation, that peculiar mental attribute which causes boys and other people to attempt any feat attempted by others, an attribute that resents an implication of inferiority or lack of skill, caused the average boy readily to acquire the necessary technique involved in flirting the sand off the end of the shovel to attain the proper aerating effect. He learned how to attain maximum speed with minimum effort, to produce a heap of sand level on the top smooth and uniform and with an even slant on each side. He also learned how to stand on either side of the heap so that he might rest without stopping, by shoveling alternately from the right and from the left side. The apprentice might never develop skill with both hands in the use of a trowel or a slicker, but he had to become ambidexterous with the shovel.

The shovel had to be kept smooth and clean at all times and usually was anointed with an oily rag before it was hung up for the night. A piece of a soldier or a wood wedge, sometimes the blade of a trowel, was employed several times a day to remove any film of sand

Fig. 1—Below—Third year boys class showed a degree of skill equal to that of the average molder working on the side floor

Fig. 2—Above—While there was little to choose between the molds made by the second year boys the T pipe made by the boy to the extreme right was the most satisfactory

that persisted in sticking to the inside of the blade near the lower edge. In addition to the natural craftsman's pride which induced the molder to keep his shovel as clean as any of the other tools, he was influenced by the knowledge that considerably less muscular effort is required to manipulate a clean shovel than one which is crusted with hard sand.

Bearing the foregoing factors in mind the foreman was justified in assuming that a man who was slovenly or awkward in the use of a shovel would prove equally unsatisfactory in performing the other duties that fall within the legitimate scope of the man who sets himself up as a journeyman molder.

Owing to changing conditions and the extensive use of mechanical sand cutting, sand handling and conveying equipment especially in the larger foundries, the shovel is losing its place as a member of the molder's tool kit. The sand is prepared on the floor ready for the molder's use, o rit is delivered to him by truck or grab bucket as he needs it. Sometimes the grab bucket dumps the sand directly into the flask and under other conditions the flask is filled through a spout connected to a storage hopper. Under any of the foregoing conditions the molder uses the shovel only intermittently and as a result he develops neither speed, ease or neatness either in its care or manipulation.

The new conception of apprentice training was illustrated by the work of boys entered in the contest staged in the foundry of the Milwaukee vocational school at the time of the convention of the American Foundrymens association in October. The contestants were first, second and third year apprentices selected from those employed at the foundry of the Allis-Chalmers Mfg. Co., West Allis, Wis.

The three experienced foundrymen selected to pass upon the qualifications of the nine apprentices taking part in the contest at the vocational school had to make allowance for this and other features in making the awards of prizes. By setting up a number of theoretical standards and by ascribing a definite value to each of these standards, the value of each boy's work might have been figured on a percentage basis and the awards made accordingly. However, so many variable factors were presented in this instance that the judges decided to rate the boys by results rather than by the methods by which these results were achieved. In other words, they rated them as first second and third in the same manner they would have classed them as first second and third if the boys had been working in shops which they controlled. The difference between the work of the three boys in each class considered on this basis was so slight that under actual working conditions they would have been entitled to the same hourly rate. In fact so little difference was apparent in the work of the three boys in the first year class that a recommendation was made to split the amount of the award and divide it among them in three equal portions.

While the element of time entered to some extent, it was not an important and by no means a deciding factor. Each boy was given a pattern different from the others and thus, while the actual time consumed in making the mold presented a point of interest, it was of no value relatively in any attempt to compare the working speed of one boy with that of his competitors. The boys in the first class were given plain flanges in which the entire pattern was placed in the drag. The second year boys worked from split patterns with one half in the drag and the other half in the cope of the flask. The third year boys were given patterns that involved the use of three-part flasks and that called for practically the same degree of skill as that possessed by the average jobbing molder accustomed to small and medium weight castings.

In a preliminary consultation before the molds were closed, the judges were inclined to favor the boy in the second year class, shown at the left in Fig. 2, for having the neatest appearing mold. The gaggers left no impression on the joint as they did in the remaining two molds. However, the cause was apparent when the castings were examined. The boy on the left did not ram his sand hard enough and as a result the hub of the casting extending into the drag was swelled slightly out of shape. The boy in the center consistently rammed his sand hard with the result that the sand in the corners of the green sand pocket was scabbed. The small T-pipe made by the boy to the right presented a pleasing appearance without either fins, scabs or swells and on this final show down the boy who made it was awarded the prize.

This same feature, a practically perfect casting was the deciding factor in awarding the prize for the third year class to the boy shown in the center of Fig. 1. He made a casting for a worm gear from a pattern split through the center in a three part flask that was rolled over twice. The boy to the right (who is not shown in the illustration) and the boy to the left made an exceedingly creditable showing on their respective jobs, a brakeband wheel in which the center part of the mold had to be lifted in addition to the cope and a double flange reducer nozzle on which the mold had to be rolled twice.

Fig. 3—The work of the boys in the first year class did not show variation that would justify selecting one in preference to the others

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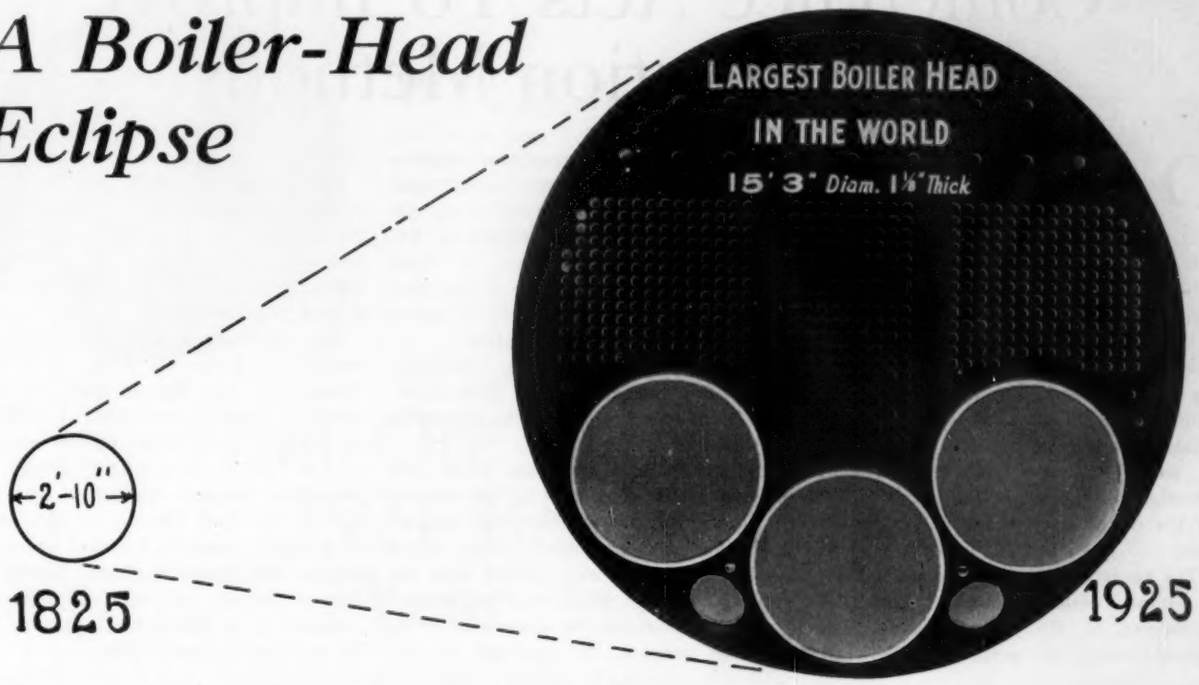
Rotary dumps patented by Erskine Ramsay will be used by the H. C. Frick Coke Co. in its Lemont mines in Pennsylvania. Two dumps now under construction, each will handle 35 cars and dump not less than 10,000 tons of coal daily together. The coal will be dumped inside of the mine onto belt conveyors and then taken underground to the Monongahela river, two miles distant, and then by barges will be taken to the Clairton by-product ovens. Erskine Ramsay, patentee of the rotary dump, is one of the executives of the Pratt Consolidated Coal Co., the New Castle Coal Co., and other Birmingham industrial concerns.

A Boiler-Head Eclipse



IN 1825, Frank Gartner of Davis Gartner & Webb, wrote to Dr. Charles Lukens, proprietor of the Brandywine plate mill at Coatesville, Pa. He ordered a "Sheat to make a boiler head 2 feet 10 inches diameter and ⅜ of an inch thick." He added, "If you cannot roll it in one sheet trim it out of two allowing for the lap in the middle."

Recently, at the railway equipment exposition at Atlantic City, the Lukens Steel Co., into which the old Brandywine mill has developed, exhibited a boiler head which illustrates the great progress made since the time, 99 years ago, when a consumer doubted the practicability of making a 2-foot 10-inch head out of one plate. The boiler shown at Atlantic City has a flat diameter of 16 feet 7 inches, and a flanged diameter of 15 feet 3 inches. The total depth of flange is 10 inches and the flanging was accomplished by the spinning process. The plate from which it was made was rolled by the Lukens company's 206-inch mill, the largest plate mill in the world. In fact, there is no other mill in which this plate could have been produced. The head was not made especially for the exhibition but was one of many which the Lukens company has made for the trade.

The order of 1825 is of interest because it is a joint order from two separate consumers, John Elgar and Davis Gartner & Webb, both of York, Pa. In those days communications were not made as easily as at present, so that the sending of an order was not a casual matter. The accompanying illustration, together with the typewritten transcript, also is of historical interest as showing how "sheats" were ordered a century ago. The letter follows:

Doctr. Charles Lukens,

"Thy letter states that thou wilt deliver sheat iron to me in York at $140 per ton rolled 2 feet wide and from 7 to 10 feet long.

"I presume the small variation from these dimentions in the following bill, will not alter the price therefore please send on as soon as thou canst 438 feet running measure all rolled exactly to the small guage or 1/12 of an inch thick except 6 sheets of the 2 feet width rolled to fit the large guage or ⅛ of an inch thick. The iron to be of the best quality and sound, and particularly clean of buckles or bilges that prevent the sheet iron lying flat.

"Also send 120 straps or hoops 7 feet long 3 in. broad & rolled to fit the large guage or ⅛ of an inch thick, these dimentions must be strictly attended to.

"It is understood that the sheats are to be nicely trimmed sides and ends. The money will await thy order in York Bank on the delivery of the iron as above described. Write me on the subject and say when I may certainly expect the iron. ."Respectfully Jno Elgar."

The plates were ordered in a postscript to this letter.

Conference Acts To Improve Distribution Methods

DEFINITE plans for a national study of the problems of distribution were formally launched at the initial meeting of the national distribution conference, held at the Chamber of Commerce of the United States, Washington, Jan. 14 and 15.

More than two hundred delegates, representing trade associations, manufacturing and merchandising activities, and a number of economists and government officials attended the meeting, the purpose of which was to outline the field of investigation to be covered and to set up the machinery for conducting the inquiry.

The conference was opened by Richard F. Grant, president of the Chamber of Commerce of the United States, who defined briefly its purposes. The task confronting the conference was emphasized by Herbert Hoover, secretary of commerce, who called attention to sources of waste in the present methods of distribution. The elimination of these wastes, he said, was a task to be done by business men themselves by co-operative effort, and not by legislation.

Theodore F. Whitmarsh, president, Francis H. Leggett & Co., New York, presided over the conference as permanent chairman.

The two-days' session was given over entirely to the discussion of the method of approaching the problem and the organization of committees to carry on the work. The field was divided into six sections each of which will be covered by a special composite committee. The tentative program as approved by the conference is presented in full below.

By special resolution the conference requested Secretary Hoover to designate the members of the committee on business statistics, for the chairmanship of which, it is understood, Owen D. Young, is under consideration.

The chairmen of the other five committees are A. Lincoln Filene, of William Filene Sons Co., Boston, trade relations; Stanley Resor, president, J. Walter Thompson Co., Chicago, market analysis; Robert Ellis, Hessig-Ellis Drug Co., Memphis, business methods; Dr. Melvin T. Copeland, director of the bureau of business research, Harvard university, Boston, distribution methods; Sidney Anderson, former chairman of the joint commission on agricultural inquiry, public relation to distribution.

Program for Study of Distribution Problems

I

COLLECTION OF BUSINESS FIGURES AS A MEANS TOWARD ACCOMPLISHING ECONOMIES IN DISTRIBUTION

(a) *Periodical comparisons of*
  (1) *Quantities of certain commodities produced and on hand.*
  (2) *Prices of the same commodities at wholesale and at retail, to give distributors a knowledge of market conditions in order that intelligent buying and selling policies may be adopted and extreme market fluctuations avoided.*

(b) *Census of distributors substantially like the census of manufactures now conducted by the department of commerce.*
  (1) *To judge the relative need for more or less establishments in various localities.*
  (2) *For the elimination of wasteful marketing efforts.*
  (3) *For the estimation of accurate sales-quotas.*

II

TRADE RELATIONS

(a) *Methods for reducing the losses due to cancellations of orders.*

(b) *Ways in which better credit practices may be established.*

(c) *Promotion of the highest ethical standards.*

(d) *Practical means toward the investigation of complaints, the conciliation of disputants and the arbitration of claims.*

III

MARKET ANALYSIS—ADVERTISING AND ADVERTISING MEDIUMS

(a) *Co-ordination of research in order*
  (1) *To avoid duplication of work by the interchange of non-confidential figures.*
  (2) *To increase the net results of research by a unification of effort.*

(b) *Methods for arriving at the economic aspect of advertising.*

(c) *Services of advertising in the efficient distribution of merchandise.*

IV

EXPENSES OF DOING BUSINESS

(a) *Services: To determine as nearly as possible those which contribute to the facility of distribution.*

(b) *Adoption of uniform systems in recording the costs of distribution by manufacturers, wholesalers and retailers to be used as comparisons by all classes of distributors in studying their own costs.*

(c) *Principles upon which credit should be based and its relation to "good" and "bad" times.*

(d) *Methods for arriving at the most economical rates of turnover and their effect upon expenses.*

(e) *Simplification (standardization) in its relation to turnover and the number of varieties, styles and sizes as well as to "hand-to-mouth" buying.*

V

METHODS OF DISTRIBUTION

(a) *Causes for various channels, such as manufacturer to wholesaler to retailer to consumer.*

(b) *Mail-order and house-to-house methods of sales; the economic results thereof.*

(c) *Chain stores and independent dealers; differences in functions.*

(d) *Warehousing and its place in distribution.*

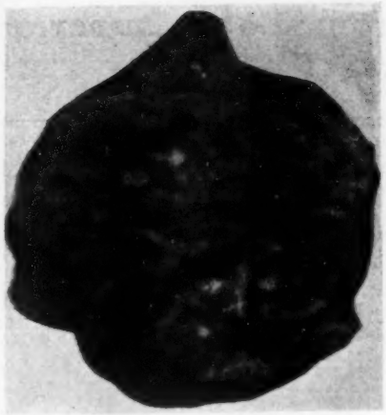
VI

GENERAL CONDITIONS AFFECTING DISTRIBUTION

(a) *Legislation favorable and unfavorable to the most efficient distribution.*

(b) *Government relations to distribution and the aid which the various departments and bureaus may give in the collection and publication of facts and figures.*

(c) *Methods for giving a wider understanding of the necessary expenses attending distribution and the reasons for certain practices.*



WITH 1924 iron ore shipments of 43,895,110 tons, the "lump" sum from the Lake Superior district to date has been rolled up to the huge total of 1,178,422,215 tons. What remains? Geologists estimate reserves at three billion tons.

Iron Ore Shipments in 1924 Below Ten-Year Average

BY A. J. HAIN

LAKE SUPERIOR iron ore shipments in 1924 totaled 43,895,110 tons. The reduction from 60,780,003 tons in 1923 is 27.7 per cent. IRON TRADE REVIEW compilations show that shipments in 1924 were 7,150,968 tons less than the yearly average for the preceding 10 years. In comparison with the average for the last 20 years they reveal only the slight gain of 631,167 tons. Shipments 14 and 15 years ago approximated those of 1924. Widely as the totals for individual years may vary, however, the 10-year averages always show a step-up, as illustrated on a following page.

The four leading companies in the Lake Superior iron mining business shipped 73 per cent of all the ore forwarded in 1924. In 1915 the same companies reported 64 per cent of the total. The increase in the proportion their figures bear to the total is due to consolidations. Consolidations have broadened the operations of the largest independent companies. The United States Steel Corp.'s proportion of the total has remained about 45 per cent.

The total amount of iron ore shipped from the Lake Superior district to date is 1,178,422,215 tons. One billion tons of this has been shipped in the last 25 years. Remaining reserves are estimated at 3,000,000,000 tons of all grades, merchantable as mined and that requiring concentration.

The concentration of iron ore is becoming more of a factor in the Lake Superior industry. Reports to the Lake Superior Iron Ore association indicated that in 1924 more than 5,000,000 tons of the ore that was shipped represented concentrates. The washed ore totaled 4,728,504 tons; ore concentrated by means of jigs 40,037 tons; sintered, 51,703 tons, and dried, 409,026, a total of 5,229,270 tons. In addition to this a larger amount represented ore that was crushed and screened before shipping. In the record of shipments, the tonnage of crude ores treated is not considered, but the product from the mills, that is the ore as it goes to the furnaces.

Shipments from the Mesabi range last year were 29,141,665 tons, 12,672,798 tons less than in 1923. Those from the Menominee range were 3,836,707 tons, a reduction of 1,018,074 tons. From the Marquette range shipments were 3,174,660 tons, 718,006 tons less than in 1923. The total from the Gegebic range was 5,159,838 tons, 1,420,112 tons under the 1923 figure. The Cuyuna range decreased its shipments 751,805 tons to 1,468,940 tons in 1924. The Vermillion range tonnage last year was 978,097 or 300,501 tons less than in 1923. The Mayville-Baraboo shipments totaled 135,203 tons, compared with 138,800 tons in the preceding year.

The total amount forwarded by vessel in 1924 was 42,623,572 tons, 16,413,132 tons less than the tonnage of 1923. This loss in 1924 is equivalent to the iron ore carrying capacity of 1600 trips of the average carrier on the lakes. It represents a revenue loss of approximately $11,152,000 for the ore carriers, for the season. The loss represented in the gross income of the mine operators, through the drop in the shipments is about $47,907,000 and with the loss in railroad revenue $26,441,000 the depression easily cost the shippers and carriers over $85,000,000 revenue. The comparison is made with the shipping reports for 1923—60,780,003 tons because the latter figure is believed to to be nearly normal.

The amount of iron ore forwarded to furnaces by the all-rail route in 1924 was 1,271,538 tons, 471,761 tons less than in

Comparative Shipments by Ranges, 1923 and 1924

	1924	1923	Decrease in 1924
Mesabi	29,141,665	41,814,463	12,672,798
Menominee	3,836,707	4,854,781	1,018,074
Marquette	3,174,660	3,892,666	718,006
Gogebic	5,159,838	6,579,950	1,420,112
Cuyuna	1,468,940	2,220,745	751,805
Vermillion	978,097	1,278,598	300,501
Mayville-Baraboo	135,203	138,800	3,597
Totals	43,895,110	60,780,003	16,884,893
By lake	42,623,572	59,036,704	16,413,132
By rail	1,271,538	1,743,299	471,761

Official Record of Iron Ore Shipments from Lake Superior District in 1924 and 1923, Gross Tons

MESABI RANGE

	1923	1924		1923	1924		1923	1924		1923	1924
Aad	51,506	4,078	Glen	491,256	466,442	Little & Prindle	1,154,702	956,369	Siphon	26,401	.....
Adams	721,098	607,633	Hanna	40,978	25,402	Mace No. 2.	53,863	46,863	Sliver	16,761	.....
Ajax	1,445	.....	Harold	180,278	126,527	Mahoning	3,029,865	1,717,092	Smith	129,584	7,120
Albany	281,129	333	Harrison	55,138	94,468	Majorca	151,743	.....	South Agnew	182,265	206,802
Alexandria	168,551	285,305	Harrison Annex	15,045	2,268	Margaret	28,164	5,919	South Judd	285,392	292,561
Arcturus	718,081	32,967	Hawkins	752,237	425,451	Mariska	109,848	17,276	Spruce	1,711,204	1,515,542
Belgrade	104,376	.....	Helen	.....	1,102	Mary Ellen	.....	40,028	St. James	603,761	519,210
Bennett	778,232	555,608	Helmer	3,670	38,641	Mesabi Iron Co.	83,525	43,689	St. Paul	353,248	16,686
Billings	188,840	100,483	Higgins	.....	27,622	Miller	138,061	11,202	Stevenson	14,885	.....
Biwabik	278,316	88,031	Higgins No. 1	464	.....	Minnewas	134,747	.....	Susquehanna	617,616	494,603
Boeing	500,127	505,348	Hill Annex	1,098,692	1,189,917	Missabe Mt.	3,933,060	3,182,801	Sweeney	132,476	.....
Bray	.....	124,236	Hill-Trumbull.	300,359	302,995	Mississippi	3,739	34,105	Thorne	85,185	50,744
Brunt	126,192	126,146	Hobart	191,091	104,838	Mohawk	12,274	.....	Tyler	18,777	24,703
Burt-Pool-Day	275,626	7,810	Holman	793,321	754,726	Morris	906,491	1,316,561	Uno North	30,326	.....
Canisteo	1,350,588	1,150,117	Hull-Rust	8,823,879	4,653,568	Morrow (new)	26,717	.....	Uno South	76,097	21,706
Carson Lake.	131	.....	Itasca	31,240	91,140	No. Eddy	7,037	18,041	Utica	244,215	214,168
Chisholm	320,730	251,169	Julia	11,566	.....	No. Harrison	550,815	207,246	Vernon	.....	13,111
Cincinnati	25,411	.....	Kerr	685,618	151,516	Patrick	588,511	209,020	Victoria	11,750	.....
Clark	88,742	44,743	Kevin	105	3,700	Pettit	5,009	.....	Wacootah	45,654	9,218
Corsica	245,198	279,872	Kinney	202,294	77,111	Philbin	.....	83,283	Wade	35,379	11,678
Dale	.....	38,794	Lamberton	122,070	61,498	Quinn	2,594	84,723	Wanless	111,590	160,882
Danube	338,206	170,872	Le Rue	183,307	132,839	Sargent	121,857	280,069	Warren	255,873	201,090
Dean	428,676	359,034	Laura	252,734	295,835	Schley	74,625	.....	Webb	424,638	146,748
Duncan	5,317	5,141	Leetonia	206,797	123,381	Scranton	402,716	302,383	Wellington	190,260	327,210
Dunwoody	717,569	638,772	Leonard	366,670	406,319	Sellers	162,488	1,040	Williams	60,229	10,064
Elba	78,438	.....	Leonidas	642,319	266,651	Shada	74,554	106,955	York	116,742	91,021
Fay	138,852	121,735	Lincoln	177,415	219,592	Shenango	406,016	130,387	Total	41,814,463	29,141,665
Fayal	311,214	469,970									

MENOMINEE RANGE

	1923	1924		1923	1924		1923	1924		1923	1924
Aragon	257,738	266,874	Caspian	234,199	180,668	James	63,143	104,953	Riverton Group	211,238	111,311
Balkan	128,212	95,010	Chapin	539,844	347,455	Judson	69,015	113,626	Rogers	198,787	218,651
Baltic	38,791	28,418	Chicagon	.....	....	Loretto	44,523	41,469	Spies	.....	19,667
Bates	49,288	101,420	Davidson	202,546	71,335	Millie	24,407	23,952	Tobin	49,874	102,715
Bengal	157,255	322,540	Delta	11,438	18,290	Monongahela	164,025	173,112	Tully	.....	.....
Berkshire	209,994	259,892	Florence	25,148	.....	Munro	.....	.....	Warner	58,917	80,038
Bristol (Claire)	455,284	110,489	Fogarty	81,745	42,802	Odgers	295,885	80,022	West Chapin.	3,663	1,194
Buck	4,660	20,319	Forbes	118,943	74,210	Penn Iron Mining Co.	383,381	176,769	Zimmerman	51,772	96,351
Cardiff	115,433	.....	Great Western	.....	.....	Porter	77,699	20,049			
Carpenter	132,617	197,278	Hiawatha	146,257	196,427	Richards	17,206	.....	Total	4,854,781	3,836,707
			Homer	231,854	139,401						

MARQUETTE RANGE

	1923	1924		1923	1924		1923	1924		1923	1924
Adams (American Mining Co.)	25,536	21,428	Cleveland-Cliffs Group	557,115	420,598	Isabella	179,498	127,068	Princeton (Swanzey)	25,642	7,453
American (Sterling)	.....	.....	Empire	40,445	.....	Jackson	12,812	33,262	Republic	169,014	53,818
Athens	187,945	128,958	Francis	.....	.....	Lake Angeline	.....	.....	Richmond	271,492	255,429
Austin	94,553	.....	Gardner-Mackinaw	10,264	.....	Lake Superior	369,004	294,845	Rolling Mill	176,364	153,239
Barnes-Hecker	17,019	17,100	Gwynn	28,529	4,935	Maas	178,772	117,560	Stephenson	74,368	186,899
Cambria	141,361	101,066	Holmes	328,193	81,933	Maitland	98,966	209,148			
			Imperial	211,302	194,588	Mary-Charlotte	120,319	158,343			
						Morris-Lloyd	210,692	269,228	Total	3,892,666	3,174,660
						Negaunee	363,461	337,762			

GOGEBIC RANGE

	1923	1924		1923	1924		1923	1924		1923	1924
Anvil	10,194	28,456	Eureka	280,348	273,122	Ottawa (Odanah)	354,280	185,798	Townsite	108,564	85,749
Ashland	38,802	82,149	Geneva	.....	.....	Palms	334,357	299,139	Wakefield	360,501	230,995
Asteroid	108,164	140,990	Ironton	323,404	327,416	Plumer	19,462	.....	Yale (West Colby)	118,799	108,779
Berkshire	2,086	595	Keweenaw	176,233	103,633	Plymouth	827,410	504,502			
Brotherton	20,889	.....	Minnewawa	.....	.....	Puritan	144,531	77,470	Total	6,579,950	5,159,838
Cary	195,596	76,250	Montreal	450,673	567,419	Royal	2,935	.....			
Castile	19,268	.....	Morgan	28,362	.....	Sunday Lake.	171,583	113,332			
Colby	46,140	.....	Newport	665,503	654,604	Tilden	204,675	178,524			
Davis (Wis.)	7,936	.....	Norrie Group	1,559,255	1,120,916						

CUYUNA RANGE

	1923	1924		1923	1924
Armour No. 1	.....	.....	Maroco	222,628	204,793
Armour No. 2	285,846	267,813	Merritt	24,387	.....
Bonnie-Belle	47,211	36,678	Milford	76,301	.....
Croft	118,564	13,301	Pennington	180,546	.....
*Louise	40,223	22,075	Portsmouth	138,998	.....
Hill Crest	101,492	101,173	Sagamore	154,570	244,430
Hopkins	.....	6,491	State Lease	138,505	46,228
Huntington	.....	45,695			
Ironton	75,653	115,955	Total	2,220,745	1,468,940
Kennedy	258,723	115,560			
Mahnomen	357,098	248,748	*Formerly Mille-Lacs		

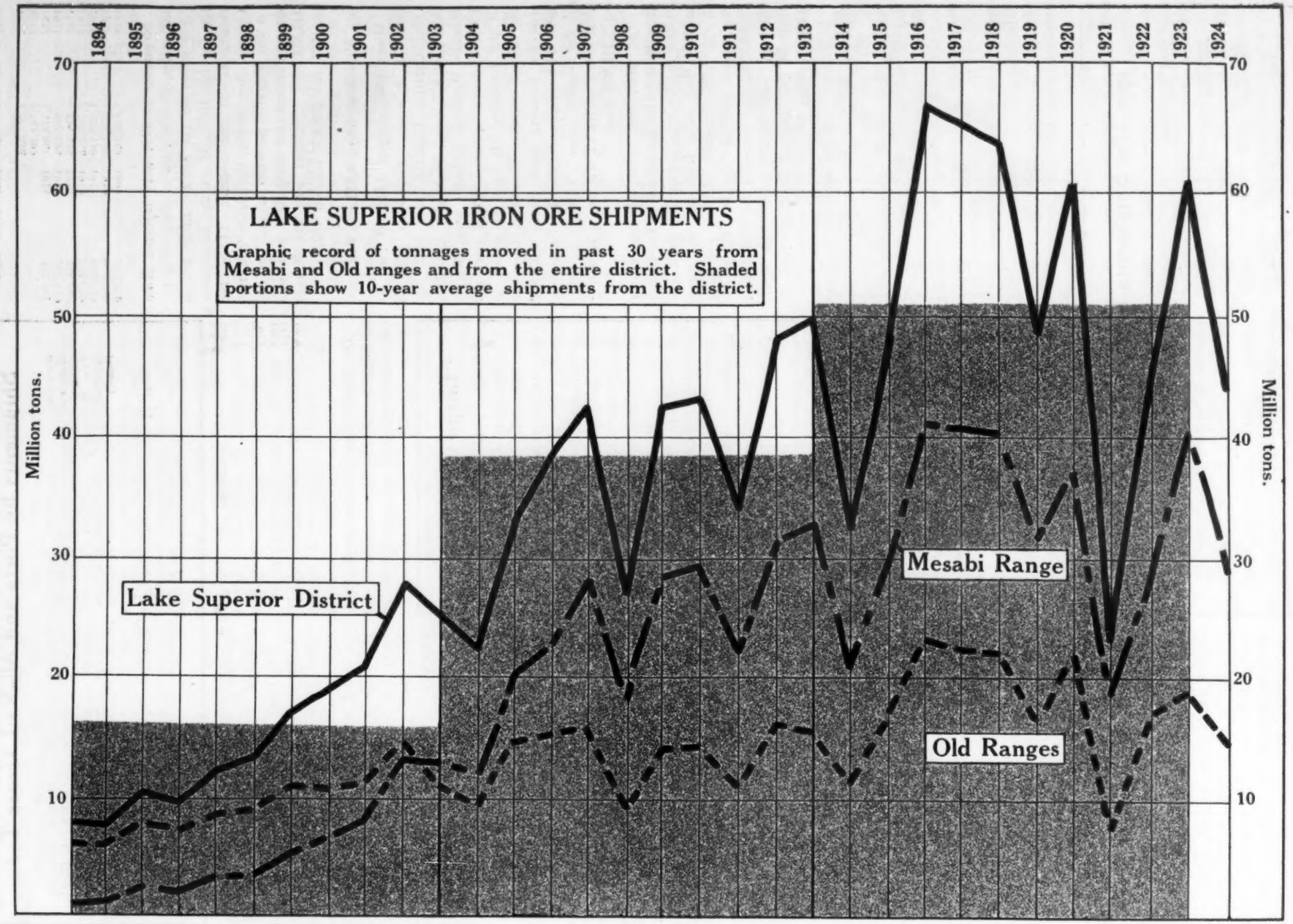
VERMILLION RANGE

	1923	1924		1923	1924
Armstrong Bay	4,748	.....	Sibley	84,877	98,874
Chandler	76,073	44,542	Soudan	140,940	59,392
Consolidated Vermillion	2,782	.....	Zenith	418,030	301,737
Pioneer	525,160	473,552	Total	1,278,598	978,097
Section 30	25,988	.....			

MAYVILLE-BARABOO RANGE

	1923	1924		1923	1924
Cahoon	27,340	36,198			
Mayville	111,460	99,005	Total	138,800	135,203

	1923	1924
GRAND TOTAL	60,780,003	43,895,110


LAKE SUPERIOR IRON ORE SHIPMENTS
Graphic record of tonnages moved in past 30 years from Mesabi and Old ranges and from the entire district. Shaded portions show 10-year average shipments from the district.
Million tons.
Million tons.
Lake Superior District
Mesabi Range
Old Ranges
1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924
70 60 50 40 30 20 10

1923. Further comparisons of all-rail shipments since the year 1908 follow:

1924	1,271,538		
1923	1,743,299		
1922	1,376,867	1915	953,947
1921	497,623	1914	707,829
1920	1,884,346	1913	876,638
1919	1,369,256	1912	785,769
1918	1,679,440	1911	662,719
1917	1,038,102	1910	913,639
1916	1,924,269	1909	903,270

Shipments in 1924 were reported from 181 mines, 29 less than in 1923. Eighty-eight mines on the Mesabi range are in the list for 1924; 32 on the Menominee range, 21 on the Gogebic, 13 on the Cuyuna, five on the Vermillion and two on the Mayville-Barbaoo range. The average shipment per mine last year was 240,303 tons, compared with 289,428 tons in 1923 and 218,856 tons in 1922.

Hull-Rust Ships 4,653,568 Tons

Mines that shipped 1,000,000 tons or more in 1924 are: Hull-Rust 4,653,568 tons; Canisteo 1,150,117 tons; Hill Annex 1,189,917 tons; Mahoning 1,717,092; Missabe Mountain 3,182,801 tons; Morris 1,316,561 tons; Spruce 1,515,542 tons. All of the foregoing are open pit mines on the Mesabi range. Elsewhere, only one iron ore property came up to 1,000,000 tons with shipments, the Norrie group, on the Gogebic range. This group, practically one series of workings, forwarded 1,120,916 tons.

The Hull-Rust mine of the Oliver Iron Mining Co., subsidiary of the United States Steel Corp. forwarded more ore in 1924 than came from any one range in the Lake Superior district, excepting the Mesabi and the Gogebic. All of the Gogebic tonnage exceeded the Hull-Rust's total by only 506,270 tons. The Hull-Rust in 1923 shipped the huge total of 8,823,879 tons.

Shipments from the mines of the Oliver company last year were 19,802,032 tons, or 45.11 per cent of all. The Oliver company has shipped approximately 362,332,102 tons since 1908. Comparisons by years follow:

Year	Gross tons	Percentage
1924	19,802,032	45.11
1923	28,074,771	46.19
1922	19,726,047	44.84
1921	14,056,759	61.65
1920	24,936,073	41.28
1919	22,065,148	45.20
1918	26,178,782	41.66
1917	28,571,977	44.34
1916	31,673,131	47.52
1915	22,518,613	47.63
1914	16,039,654	49.01
1913	24,502,244	49.06
1912	23,845,363	49.46
1911	17,282,499	52.70
1910	21,661,143	40.86
1909	21,397,866	50.36
Total	362,332,102	

The Mesabi Iron Co. that has the largest plant in the Lake Superior district for the concentration of ore, representing an investment of nearly $5,000,000, was idle for the greater part of 1924, owing to the lack of demand. Its shipments in 1924 amounted to 43,689 tons. In 1923 it shipped 83,525 tons, and in the first year of the plant's commercial operation, 1922, the tonnage was 10,675. The plant was just beginning to demonstrate engineering efficiency when the slump occurred.

The Mary Ellen mine of the Stanley Mining Co. shipped 40,028 tons in 1924. This is a new mine, and the shipments represent concentrates obtained by a process that is comparatively new in the Lake Superior district, washing and jigging.

The other notable feature of this kind is the shipment of 8014 tons of concentrates from the plant at the Evergreen mine on the Cuyuna range. The mine itself did not produce ore in 1924, but the crude ore that was treated was taken from the State Lease mine of the Inland Steel Co., adjoining the Evergreen property. About 12,000 tons of the material was treated to obtain the 8014 tons of concentrates shipped from the Evergreen plant. This shipment is classified with the State Lease total. The Evergreen mine is being stripped preparatory to making shipments. The plant started operating in 1924.

IRON TRADE REVIEW receives annually at the close of the season shipping reports from mining companies, sellers, consumers, railroads and dock offices. The figures are compared and discrepancies traced and eliminated. They are then incorporated into a large ore chart setting forth the complete shipping record of each mine in the Lake Superior district, from the date of its opening.

Iron Ore Lost Not Included

In compiling the figure in the past, IRON TRADE REVIEW eliminated ore that was lost in transit from mines to docks. Ore that was held in dock at the close of one shipping season was not included in that season's record, but picked up in the following year when it was sent to destination.

Returns for 1924 show that 914 tons of ore was lost in transit. The amount of ore held in docks at the close of the season was 510 tons. In 1924 there was forwarded 215 tons that were held in dock at the close of 1923. This explanation is made to avoid confusion with the reports now issued by the Lake Superior Iron Ore association. The association includes in its figures the ore tonnage as it leaves the mines. The discrepancy is slight, and otherwise all mine figures as reported in IRON TRADE REVIEW and by the association check exactly.

A shipment of 43 tons was made by the Magpie mine on the Canadian side of the district, that being the only shipment from a Canadian mine in 1924.

Shipments by Ports and All-Rail, Gross Tons

	1924	1923	1922	1921	1920	1919
Escanaba	4,244,669	5,607,411	4,592,354	1,806,656	7,361,070	4,963,358
Marquette	2,516,548	2,789,285	1,976,220	786,946	3,415,108	2,132,935
Ashland	4,807,565	6,237,449	5,813,207	2,264,705	8,180,852	5,915,383
Two Harbors	4,817,494	6,418,464	5,952,437	3,286,338	9,278,464	6,424,545
Superior	13,355,214	17,820,476	11,234,240	4,991,278	14,812,398	10,919,965
Duluth	12,882,082	20,163,619	13,044,771	9,164,803	15,479,334	16,821,209
Total by lake	42,623,572	59,036,704	42,613,229	22,300,726	58,527,226	47,177,395
Total by rail	1,271,538	1,743,299	1,376,867	497,623	1,884,346	1,369,256
Total	43,895,110	60,780,003	43,990,096	22,798,349	60,411,572	48,546,651

Large Ore Chart

IRON TRADE REVIEW'S complete chart of Lake Superior iron ore shipments from the opening of the various mines to date will be ready for distribution in a few weeks. The chart, 28 x 31 inches, is a standard reference work which has proved valuable innumerable times to those companies which subscribe for it. Many companies use a number of these charts in their operating, shipping and sales departments. The new chart may be obtained by addressing IRON TRADE REVIEW, *Penton building, Cleveland, and enclosing* $2.

Iron Ore Shipments by Ranges, Gross Tons

	1924	1923	1922	1921	1920	1919
Mesabi	29,141,665	41,814,463	28,055,394	16,350,696	37,149,277	31,997,699
Marquette	3,174,660	3,892,666	2,817,390	1,116,468	4,608,323	2,992,272
Menominee	3,836,707	4,854,781	4,078,519	1,584,404	6,562,106	4,442,868
Gogebic	5,159,838	6,579,950	6,219,610	2,336,493	8,763,332	6,230,839
Vermillion	978,097	1,278,598	1,211,467	869,313	1,007,435	929,049
Cuyuna	1,468,940	2,220,745	1,497,615	488,562	2,191,528	1,861,165
Mayville-Baraboo	135,203	138,800	110,101	52,413	129,571	92,819
Total	43,895,110	60,780,003	43,990,096	22,798,349	60,411,572	48,546,651

Scrap Plan Burden

Eastern Dealers Find Fault with Revised Specifications

Philadelphia, Jan. 27.—Dealers in iron and steel scrap in this district believe the standard specifications prepared and tentatively adopted by the National Association of Purchasing Agents are too drastic and do not suit conditions in the East.

The requirements for No. 1 heavy melting steel come in for much criticism. Most eastern mills will accept this grade in lengths up to 6 feet. One or two mills require that none be over 5 feet long and pay a premium for this length. It is believed the requirement that plate scrap be cut to 12 x 12 inches will cause it to be sold as low phosphorus scrap which commands several dollars a ton higher. Present practice is to accept up to 5 feet x 20 inches. Requirements that no piece weigh less than 5 pounds would exclude such scrap as nuts, bolts and spikes, which are fully acceptable to eastern mills.

For the No. 2 melting steel listed in the new specifications there are no buyers in the East. Eastern mills take the No. 2 scrap moderately mixed with No. 1. But they object to taking it alone as it does not give sufficient weight in the charging box.

For heavy shoveling steel there also is no market in the East. This grade also generally is accepted in the East as No. 1 heavy melting steel.

The No. 1 selected shearing scrap specification is in accord with eastern practice with the exception that some mills will not accept girder rails at the same price as standard T-rails.

With these exceptions the new specifications are in accord with eastern practice. In only one case are the specifications more liberal. This is in the case of rails for rolling. It is provided that the rails should weigh 50 pounds per yard and heavier. Eastern consumers usually regard 56 pounds as the minimum and some want 80-pound or heavier rails.

Eastern mills have different ideas as to what scrap is acceptable. One plant accepts practically all scrap shipped to it, and has a schedule of penalties which it deducts for material not up to its requirements. Some users insist on having only the No. 1 grade of heavy melting steel. One consumer will accept absolutely no automobile scrap because it fears the chromium and nickel that frequently goes into such steel.

If the new specifications are generally adopted in the East, dealers declare there will not be enough acceptable scrap to go round and the present flexibility will disappear. A great deal more yard treatment would be required they say and this would materially increase the cost of scrap.

Bethlehem Steel Earnings Recover Sharply

The first tangible evidence of a turn in the curve of profits for iron and steel companies, came last week with the fourth quarter report of the Bethlehem Steel Corp. The statement showed net earnings of $9,550,715 for the three months ended Dec. 31. This compared with $6,495,731 in the preceding quarter. The increase amounted to 47 per cent. The surplus available for common stock was $1,940,539 against a deficit of $972,962 in the September quarter.

The preliminary report of the company for the year revealed net earnings of $33,995,489 against $37,373,228 in 1923. The improvement in earnings in the fourth quarter was the direct result of the recovery in steel demand and operations which started in August. Prices also began to advance in November a fact which contributed somewhat to the betterment in profits.

Unfilled orders on Dec. 31 stood at $77,049,619 compared with $49,907,160, three months earlier, and $53,265,000 one year before. The following table shows the company's earnings for the December and September quarters of 1924 and the December quarter of 1923:

	Quarter Ended Dec. 31, 1924	Quarter Ended Sept. 30, 1924	Quarter Ended Dec. 31, 1923
Net earnings	$9,550,715	$6,495,731	$9,935,147
Interest, etc.	3,498,539	3,466,107	3,270,245
Balance	$6,052,176	$3,029,624	$3,270,245
Depreciation and depletion	3,036,314	2,927,457	2,846,460
Net income	$3,015,862	$ 102,167	$3,818,442
Pfd. dividends	1,075,323	1,075,129	1,075,129
Com. dividends	.....	.....	2,251,461
Surplus	$1,940,539	*972,962	$ 491,852

*Deficit.

The preliminary earnings statement for 1924 compared with 1923 follows:

	1924	1923
Gross sales	$243,904,266	$275,213,000
Net earnings	33,996,489	37,373,228
Interest, etc.	13,233,417	12,322,997
Balance	$ 20,763,072	$ 25,050,230
Depreciation and depletion	11,846,891	10,676,078
Net income	$ 8,916,181	$ 14,374,152
Preferred dividends	4,300,583	4,318,253
Common dividends	2,247,571	7,767,023
Surplus	$ 2,368,027	$ 2,288,824

President Eugene G. Grace issued a statement in connection with the report in which he said operations declined to 31 per cent of capacity in the summer. They advanced to 73 per cent at the close of the year and at present are at 80 per cent.

"The trend of prices during most of the year was gradually downward, the average billing prices for December being approximately $9 per ton lower than in January," said Mr. Grace. "The increased demand throughout the fourth quarter not only checked the declining prices but resulted in prices advancing $2 to $4 per ton.

"Net additions to property account for plant construction during the year amounted to $17,504,966. The estimated cost to complete construction authorized and in progress as of Dec. 31, 1924, was $31,000,000, cash for which is all provided.

"Gross sales and earnings for 1924 aggregated $243,904,266, as compared with $275,213,000 for 1923. Total amount of new business booked during the year amounted to $267,688,974, as compared with $260,968,000 for 1923."

Will Supervise Stack Reconstruction

Julian Kennedy, Pittsburgh, has been retained as consulting engineer in the remodeling of the Burden Iron Co., blast furnace at Troy, N. Y., which recently was taken over by the Hudson Valley Coke & Products Corp. The contract for the steel for the new furnace shell, stoves, etc., has been let to the Riter-Conley Co., The general supervision of the construction of the blast furnace as well as the by-product coke plant is in the hands of Leigh Willard, who is acting as manager and chief engineer of the Hudson Valley Coke & Products Corp.

Booklet Has Information on Structural Steel

"Steel Construction," a booklet just issued by the American Institute of Steel Construction contains the Institute's standard specification, and code of standard practice for structural steel. The introduction of the book consists of a mathematical explanation of the development of the various formulas recommended in the specification for the proper reduction of working stresses. Accompanying this explanation is a set of charts which eliminate a vast amount of mathematical calculation in connection with structural steel design. An interesting feature of the booklet is the data given on action of structural steel members under varying conditions.

For many years a pressing need has existed for a structural steel handbook which would assemble, in usable form, data now scattered through the pages of handbooks published by the steel mills, works on engineering, technical magazines and scientific papers. Preparation of such a handbook has been undertaken by the institute and the new booklet is a forecast of what may be expected when the work is completed. Executive offices of the institute are at 350 Madison avenue, New York, and the engineering department at 1052 Leader-News building, Cleveland.

News of Societies

Past and Coming Meetings of National and Local Trade and Technical Organizations

HERBERT HOOVER, secretary of commerce, was made an honorary member of the American Society of Civil Engineers, on Jan. 21. Approximately 1200 members of the society attended the ceremony which was held in the auditorium of the Engineering Societies building, 33 West Thirty-ninth street, New York. On the same occasion, Robert Ridgway, chief engineer of the New York City board of transportation, was elected president of the society for 1925.

* * *

Discusses Automobile Steels

At a meeting of the New York chapter of the American Society for Steel Treating Jan. 21, Thomas H. Wickenden, development and research department, International Nickel Co., New York, presented a paper entitled "Automobile Design and Automotive Steels." Dr. Carl Benedicks, the Swedish scientist, will address the chapter on "The Nature of High Speed Steel" at its next regular meeting Feb. 11 in the Woolworth building, New York.

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Foundrymen Discuss Pig Iron

Advantages of using Mayari grade pig iron for special kinds of iron mixtures where exceedingly close grain and increased tensile strength is necessary was the subject of a talk made by G. A. Richardson, Bethlehem Steel Co., Bethlehem, Pa., before the Quad City Foundrymen's association, Davenport, Iowa, Jan. 19. In a second paper, "Factors in Quality of Gray Iron," E. J. Lowry, Hickman Williams & Co., Chicago, explained the properties of various constituents in cast iron. The effect of carbon upon soundness and machinability was of particular interest. A number of lantern slides were used to illustrate the paper.

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Boiler Operation Is Described

The annual meeting of the steelworks section. Engineers' Society of Western Pennsylvania, was held Jan. 17 in the William Penn hotel, Pittsburgh, at which time Grant D. Bradshaw of Andrews-Bradshaw Co., Pittsburgh, retiring chairman of the section, presented a paper on "Concentration in Boilers." He described the effects of concentration; its relation to foaming, water analysis and boiler design; limits of concentration; causes determining amount of concentration as regards feed water analysis, scale, scale water treatment, blowing down, and moisture in steam; calorimeters; methods of determining concentration as to analysis, evaporation and electrically; and the checking results. The discussion was illustrated by lantern slides.

* * *

Prepare for Annual Banquet

Principal business conducted at the annual meeting of the Engineers' Society of Western Pennsylvania, held at the William Penn hotel, Jan. 19, was the election of officers. The selection made is as follows: President, W. B. Spellmire; vice president, George T. Ladd; treasurer, A. Stucki and secretary, K. F. Treschow, the latter two officers being re-elected. W. L. Affelder and T. C. Clifford were made directors for a term of three years. Annual reports covering last year's activities were submitted by chairmen of the standing committees of the four sections of the society.

More than 1000 reservations have been made for annual banquet of the society which is to be held at the William Penn hotel Jan. 26. The speakers for the occasion have been announced as M. S. Sloan, president Brooklyn-Edison Co.; Right Hon. Edward Hilton Young, a member of the present British parliament and an authority on international finance; Neil O'Hara, humorist; and George H. Neilson, vice president Braeburn Alloy Steel Corp., Braeburn, Pa.

Rents paid by wage earners for houses of four or five unheated rooms and a bath in the United States as a whole averaged 84 per cent higher in November, 1924, than they did in the summer of 1914, says the National Industrial Conference board.

Convention Calendar

Jan. 28-30—American Management association. Annual convention at Hotel Astor, New York. W. J. Donald, 20 Vesey street, New York, is managing director.

Feb. 16-21—American Ceramic society. Annual meeting at Columbus, O. Ross C. Purdy, Lord Hall, Ohio State university, Columbus, O., is secretary.

Feb. 24-27—American Concrete institute. Annual meeting in Chicago. Harvey Whipple, 1807 Grand boulevard, is secretary.

Steel Stock Offered to Employes at $125

New York, Jan. 23.—Under the usual partial payment plan, employes of the United States Steel Corp. may buy common stock of that corporation at $125 per share, according to announcement by Chairman Elbert H. Gary. This is the highest price employes have been asked to pay since the company was organized. It compares with $100 last year and $50 when common stock was first offered to employes in 1909. Subscriptions will be received up to Feb. 21. To all employes who own the stock for five years the company pays an annual bonus of $5 per share. Last year the company offered 100,000 shares and received subscriptions from 61,292 employes totaling 154,363 shares. The company thereupon was forced to allot the stock and 113,588 shares were apportioned.

The following table shows the price at which the common and preferred stocks were offered in previous years and the amount subscribed for or alloted to employes:

$750.00 or less	1 share
750.01 to $1,666.66	2 shares
1,666.67 to 2,333.33	3 shares
2,333.34 to 3,750.00	4 shares
3,750.01 to 4,583.00	5 shares
4,583.34 to 6,500.00	6 shares
6,500.01 to 7,500.00	7 shares
7,500.01 to 8,500.00	8 shares
8,500.01 to 9,500.00	9 shares
9,500.01 to 13,125.00	10 shares
13,125.01 to 14,375.00	11 shares
14,375.01 to 15,625.00	12 shares
15,625.01 to 16,875.00	13 shares
16,875.01 to 18,125.00	14 shares
18,125.01 to 19,375.00	15 shares
19,375.01 to 33,000.00	16 shares
33,000.01 to 35,000.00	17 shares

The number of shares which employes are entitled to subscribe for in relation to their salaries or wages is given below:

	—Common—		—Preferred—	
	Price	No. shares taken	Price	No. shares taken
1925	125	.....	...	.....
1924	100	*113,588	...	.....
1923	107	100,730	...	.....
1922	84	94,415	...	.....
1921	81	255,325	...	.....
1920	106	167,407	...	.....
1919	92	156,680	...	.....
1918	92	95,437	...	.....
1917	107	67,410	...	.....
1916	85	49,742	...	.....
1915†	..	.....	...	.....
1914	57	47,680	105	42,926
1913	66	25,793	109	34,551
1912	65	30,735	110	30,619
1911	70	29,119	114	19,229
1910	..	.....	124	24,672
1909	50	15,318	110	18,000
1908	..	.....	87.50	30,621
1907	..	.....	102	27,032
1906	..	.....	100	23,989
1905	..	.....	87.50	17,973
1904	..	.....	55	32,519
1903	..	.....	82.50	48,983
1902	..	.....	...	.....
1901	..	.....	...	.....

*154,363 shares subscribed to.
†No. stock offered to employes in 1915.

Johnston Tool & Mfg. Co., Chappaqua, N. Y., has filed bankruptcy papers with assets of $6018 and liabilities of $25,165.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

WALTER S. GIFFORD recently has been elected president of the American Telephone & Telegraph Co., at the age of 40 years. For the past two years he has been executive vice president. This position, which was created for Mr. Gifford, probably will not be filled. He succeeds as president Harry B. Thayer, who became chairman of the board. Mr. Gifford was born in Salem, Mass., Jan. 10, 1885 and was graduated from Harvard university in 1905. He shortly afterward became assistant secretary and assistant treasurer of the Western Electric Co., affiliated company of the American Telephone & Telegraph Co.

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Clyde E. Dickey of the Dickey Steel Co., 233 Broadway, New York, has left for a vacation in Florida.

* * *

Paul W. Hiller has been given charge of the advertising department of the Carbondale Machine Co., Carbondale, Pa.

* * *

Don R. Forsythe succeeds Lew Dosters as assistant manager of sales for the E. C. Atkins & Co., Indianapolis, manufacturer of saws.

* * *

W. T. Omwake has been elected chairman of the Landis Tool Co., Waynesboro, Pa., and J. Elmer Frantz has been selected to succeed him as president.

* * *

D. H. Slonaker, vice president, National Roll & Foundry Co., Avonmore, Pa., is about to leave on a three months' business trip to Japan.

* * *

A. C. Roan, formerly with the J. I. Case Threshing Machine Co., Racine, Wis., has been appointed sales manager of the Johnson Sieve & Mfg. Co., Minneapolis.

* * *

Arthur E. Barlow, for 13 years superintendent of the Wickwire Spencer Steel Corp., New York, and connected with the business for 36 years under different managements, has been retired on pension.

* * *

George Shields succeeded William H. Garver as general manager of the plant at New Brighton, Pa., of the Standard Sanitary Mfg. Co., Pittsburgh, effective Jan. 1.

* * *

George P. Fisher, foundry superintendent, Whiting Corp., Harvey, Ill., was elected president of the Chicago Foundrymen's club for 1925 at the annual meeting of the club, Jan. 12.

* * *

Louis Sacks, proprietor of the Louis Sacks Iron Foundry and the Brass Founders Supply Co., and interested in other concerns at Newark, N. J., celebrated his seventy-third birthday Jan. 27. Mr. Sacks has been in the foundry business for many years and is one of the best known foundrymen in the East.

ALBERT E. GARNJOST

* * *

George H. Grundy, manager of steel sales for Peter A. Frasse & Co., New York, will be transferred to Hartford, Conn., to take charge of sales of tool steel and hot rolled alloy steel department in the old plant of the Frasse Steel Co., recently purchased by the Union Drawn Steel Co., Beaver Falls, Pa.

* * *

E. B. Rogers, formerly superintendent of the Sampson Tractor Co., Janesville, Wis., has been made superintendent of the Chicago Heights, Ill., plant of the Mid-West Forging Co., succeeding R. C. Rowan, who has resigned.

* * *

Albert E. Garnjost, for 16 years connected with Berger & Carter Co., San Francisco, recently acquired by A. M. Castle & Co., Chicago, in various capacities, has been appointed manager of the Los Angeles office of A. B. Ambler and will have charge of sales in that district for Alan Wood Iron & Steel Co., Philadelphia, and the Columbia Steel & Shafting Co., Pittsburgh. Mr. Garnjost will have his headquarters in the San Fernando building.

* * *

William H. Lucas, Jr., for the past 21 years chief engineer and plant superintendent of the Espen-Lucas Machine Works, Front and Girard avenues, Philadelphia, builder of automobile production and special machinery, has been appointed plant and production manager for the Delling Motors Co., West Collingswood, N. J.

* * *

William H. Utz, vice president and formerly European director of Jenkins Bros., Ltd., with headquarters in London, England, has been made director of sales for Jenkins Bros., 80 White street, New York, manufacturer of valves, disk, etc. Mr. Utz assumed his new duties Jan. 1 and will have general charge of the selling activities of the company.

* * *

James F. Hamilton of Milwaukee, for ten years with the Cudahy works of the Worthington Pump & Machinery Corp. at Milwaukee, and since operations were abandoned there last July, at the works in Harrison, N. J., has been transferred to Milwaukee as manager of a new branch sales office, effective Jan. 1. His headquarters are at 895 South Pierce street.

* * *

J. E. Stover, who has been connected with the Van Dorn & Dutton Co., Cleveland, in a sales engineering capacity for a number of years has been promoted to assistant sales manager of the company. Mr. Stover, who is a graduate of Penn State university in engineering has spent most of his time since graduation with the Van Dorn company making and selling gears.

* * *

William P. Cheney has become associated with the Boston office of Pilling & Co., Inc., 11 Broadway, New York, iron, steel, ore, coal and coke interest. The Boston office is in charge of Fred F. Newcomb, resident manager, at 200 Devonshire street. Mr. Cheney was born and educated in New England, and became associated with Rogers, Brown & Co. in Boston in 1902. In 1904 he was transferred to Pittsburgh and in 1906

made manager of their coke department. In 1915 Mr. Cheney was appointed co-resident manager of the Pittsburgh office of Rogers, Brown & Co., from which connection he resigned Jan. 1, 1925 to return to Boston for Pilling & Co., Inc.

* * *

Philip O. Geier, treasurer of the Cincinnati Milling Machine Co., Cincinnati, who recently was re-elected a director of the Cincinnati chamber of commerce, has been elected president of that organization.

* * *

Charles B. Rose, has been made vice president and general manager of the Fageol Motors Co., Kent, O., builder of busses. He formerly was identified with the Velie Motors Corp. and the Moline Plow Co., Moline, Ill.

Mr. Rose succeeds Gordon Lee as manager, Mr. Lee having been appointed general sales manager of the Fageol company which has its headquarters in Oakland, Cal.

* * *

Robert D. McColl has been appointed manager of the Schenectady, N. Y., plant of the American Locomotive Co., succeeding John R. Magarvey, who has been appointed consulting vice president of the company.

* * *

George I. Danley has been appointed manager of the eastern sales for the Danley Machine Specialties, 35 Wilbur avenue, Long Island City, New York.

Charles F. Schonmann, formerly with the American Can Co. and the E. W. Bliss Co., will assist Mr. Danley.

* * *

Marion C. Bias has become associated with the Steel Products Co., Racine, Wis., manufacturer of valves and fittings for gas engines, as secretary and treasurer. He was purchasing agent of the old Mitchell Motors Co. of Racine for 15 years and previously was with the International Harvester Co. at Chicago.

* * *

James B. Armstrong has become associated with Henry H. Adams & Co., 149 Broadway, New York, in the sale of pig iron, coal and coke in the New York territory. Mr. Armstrong for the past nine years had been connected with the New York sales office of the Bethlehem Steel Co.

* * *

William E. Curran, assistant superintendent of the by-product coke plant of the Republic Iron & Steel Co., Youngstown, has been named superintendent of the new coke plant of the company under erection at Birmingham, Ala. Mr. Curran has assumed his new post.

* * *

Paul E. Luther, who recently joined the Salamanca Foundry & Machine Works, Salamanca, N. Y., formerly was president of the Springfield Brass & Iron Foundry, Springfield, Vt.

William M. Greene, who also joined the Salamanca company recently, formerly was with the Automatic Refrigerator Co., Hartford, Conn.

* * *

Edward N. Hurley, of the Hurley Machine Co., Chicago, has been made chairman of the delegation of the Illinois Manufacturers' association which will attend the third general meeting of the international chamber of commerce at Brussels, June 21-28. William Butterworth, of Deere & Co., Moline, Ill., is a member of the delegation.

* * *

R. R. Curry, assistant general superintendent of the works at Portsmouth, O. of the Wheeling Steel Corp., Wheeling, W. Va., has resigned to return to the Allegheny Steel Co., Brackenridge, Pa., as superintendent. He entered the Allegheny company 25 years ago, 12 years later being made superintendent of the sheet mills and finishing department.

* * *

E. W. Harrison of Philadelphia, for many years connected with the iron and steel industry, has resumed his connection with the American Tube & Stamping Co., Bridgeport, Conn., after an extended vacation and a tour abroad. Mr. Harrison will act as director of sales promotion, and his offices will be located in the Franklin Trust building, Philadelphia, after March 30.

* * *

W. Lloyd Wolfe has been appointed superintendent of the Delaware River Steel Co., Chester, Pa. He will have charge of operations of the blast furnace and iron ore dock and other properties of the company. Mr. Wolfe was receiver of the Temple Iron Co. with blast furnaces at Temple, Pa. Previously, he operated blast furnaces for the Lackawanna, Bethlehem and Illinois Steel companies.

* * *

Eugene C. Peck, who resigned recently as works manager of the Cleveland Twist Drill Co., Cleveland, as announced in the Jan. 15 issue of IRON TRADE REVIEW, was presented with a watch by his associates and the members of the board, as a symbol of conscientious service. Mr. Peck will continue as a stockholder in the company and a member of the board of directors.

* * *

L. T. Miller has been appointed purchasing agent of the Detroit Steel Products Co., Detroit, to succeed T. F. Thornton, who resigned recently to take the presidency of the Roehm Steel Rolling Mills, Detroit. Mr. Miller has been connected in purchasing capacities for 15 years, previously having been with the Chevrolet Motor Car Co., the Continental Motors, Inc., and the Elgin Motor Car Co.

* * *

W. H. Pugh, recently appointed representative in the northeastern part of Pennsylvania for the Roller-Smith Co., 233 Broadway, New York, manufacturer of electrical instruments, will have his headquarters in Bethlehem, Pa. Previously he had been representing the Roller-Smith Co. in a territory adjoining Bethlehem. Mr. Pugh had been superintendent of the works of the Roller-Smith Co. previous to joining its sales organization.

* * *

T. E. Barker, president and manager of the Accurate Steel Treating Co., Chicago, recently formed, is well known in steel treating circles. He was the first chairman of the Chicago section of the Steel Treating Research society, in 1917-18; and for two years national president of the American Steel Treaters society, and from 1920 to 1921 first vice president of the American Society for Steel Treating. Mr. Barker has been awarded a founders membership in the American Society for Steel Treating.

* * *

J. C. Richardson, for the past ten years vice president of the Queen City Supply Co., Cincinnati, announced his retirement from active business at the annual meeting of the stockholders of the company on Jan. 17 because of ill health.

George Puchta, former Mayor of Cincinnati, was re-elected president, Fenton D. Snodgrass treasurer, and Lawrence Puchta, son of the president, secretary. A succesor to Mr. Richardson will not be elected, it was announced.

* * *

C. R. Lowrie, for 17 years connected with the Kilbourne & Jacobs Mfg. Co., Columbus, O., and its successor, the Case Crane & Engineering Co., has left the organization. Mr. Lowrie started with the Kilbourne company immediately after being graduated from Ohio State university, in 1907 and worked through all productive departments, including four years as general purchasing agent and ending with four years as general superintendent in charge of operation.

Mr. Lowrie is succeeded by K. B. Norton, a son of the president of the company.

Obituaries

CHARLES HULL CLARK, president and founder of Clark Bros. Bolt Co., Milldale, Conn., died at his home in that city, Jan. 17, at the age of 92 years. Mr. Clark was one of the original members of the Clark Bros. company, having the unusual record of 71 years of active service with an industrial organization. He was born Oct. 23, 1832 in the house in Milldale in which he always resided and in which he died. He was educated in schools in Southington and later at Lewis academy. In 1854, together with his brothers William and Henry, he founded what is now known as the Clark Bros. Bolt Co., a pioneer bolt manufacturer in this country. He worked as a laborer, superintendent and president, serving in the last capacity since the death of his brother Henry in 1906. At the time of his death, Charles Clark, in addition to being president of the Clark Bros. company, was president of the Waterbury-Milldale Tramway Co., president of the Southington Bank & Trust Co., and active in other organizations.

* * *

Guy Herbert Carleton, for many years associated with G. W. & F. Smith Iron Co., died recently at his home in Brookline, Mass.

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James Morrison, founder of the James Morrison Brass Mfg. Co., Toronto, Ont., died Jan. 6 at the age of 83 years.

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Charles H. Bonbright, Flint, Mich., organizer of the Imperial Wheel Co., and the Walker-Weiss Axle Co., died recently.

* * *

Herbert S. Bruce, 49 years old, connected with the sales department of the American Can Co., New York, died at his home in Brooklyn, Jan. 19.

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Clyde E. Maxwell, superintendent of the Brier Hill plant of the Youngstown Sheet & Tube Co., Youngstown, fell dead at his home in Girard, O., Jan. 20. He was 47 years of age.

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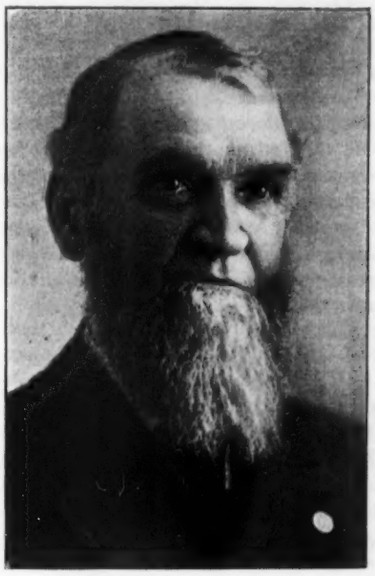
Leander C. Belcher, treasurer of Belcher & Loomis Hardware Co., Providence, R. I., with which company he had been connected for 65 years, died recently at his home. Mr. Belcher was 88 years old.

* * *

John H. Madden, chief engineer of the New York Transit commission and widely known expert on subway construction, died Jan. 25 of heart disease in New York, aged 49. He was a graduate of the College of the City of New York.

* * *

William G. Mills, district manager in charge of the southern territory for the National Carbon Co., New York and Cleveland, with headquarters in Atlanta, died Jan. 19, at his home in Atlanta at the age of 51 years, following a brief illness. Mr. Mills had been in charge of



CHARLES HULL CLARK

the southern district for the National Carbon Co. for about 14 years.

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Robert James Wilson, secretary and treasurer of the Wilson-Snyder Mfg. Co., Pittsburgh, manufacturer of pumps, died at his home in that city, Jan. 20 at the age of 76 years. He was founder of the Wilson company.

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William D. Hoxie, Westerly, R. I., chairman of the board of Babcock & Wilcox Co., New York, with plant at Bayonne, N. J., died Jan. 12 aboard the steamer SOUTHERN CROSS. Mr. Hoxie was aged 58.

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David Wilson, treasurer of the Philadelphia & Reading Coal & Iron Corp., died Jan. 20, while at work in his office in Philadelphia. He was aged 63 and had been affiliated with the company for 42 years.

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Harry R. Kimmel, former chief chemist of the Marion Steam Shovel Co., Marion, O., builder of excavating equipment, died Jan. 20 at Kalamazoo, Mich., at the age of 46 years. Mr. Kimmel was a graduate of Case School of Applied Science, Cleveland.

* * *

Henry J. Steffen, general superintendent of the W. S. Tyler Co., Cleveland, manufacturer of wire products, died at his home in that city, Jan. 12, at the age of 65 years. He had been connected with the Tyler company for 51 years, 31 of which had been spent as general superintendent. Mr. Steffen came to America from Germany at the age of 7 years.

* * *

Lynn B. Easton, 40 years old, general manager of the plant of the Worthington Pump & Machinery Corp., at Elmwood, O., died at Cincinnati, Jan. 24, following an operation. Mr. Easton had been a resident of Cincinnati for the past 20 years and took an active part in civic affairs. He was a member of the board of directors of the National Metal Trades association and was active in the affairs of the Associated Foundries association.

* * *

Edward J. Peirce Jr., founder and for many years vice president and general manager of the Taft Peirce Co., Woonsocket, R. I., died recently at Providence, R. I. He was 73 years old, and during the last few years was a resident of New York. He was born in Providence, and received his early training in the plant of Brown & Sharpe Mfg. Co. He was a member of many organizations including the American Society of Mechanical Engineers.

* * *

Roger Morse Freeman, consulting engineer, New York, and son of John R. Freeman, eminent in the same field, died recently of heart failure, following a severe attack of appendicitis. He was in his 33rd year. Mr. Freeman was born in Winchester, Mass., July 20, 1892. He graduated from the Massachusetts Institute of Technology, Cambridge, Mass., in 1913. Subsequently, he pursued his engineering studies at the University of Charlottenburg, Germany. For two years he was assistant to his father. When the United States entered the war, he was in the service of the navy department. In his capacity as a government engineer, he assisted in building the armor plate plant at Charleston, W. Va., and other government plants at Erie, Pa.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

SCIENTIFIC heat treatment of metals by a special process, and manufacture and sale of patented hair curlers, can openers, surgical instruments and other metal stamping and die work, will be undertaken by the Geometric Appliance Corp., 27 Sixth street, Brooklyn, N. Y., incorporated Aug. 20, 1924, with $200,000 capital. The company started in business Jan. 2, 1925. Thomas H. Ross is president, George Macaulay, vice president and George E. Nace, secretary and treasurer. Mr. Ross, who has patented several products to be manufactured and who has developed the new heat treating process after 25 years of experimentation, formerly was with the American Tobacco Co., where he invented a number of machines. Mr. Nace was connected with the American Machine & Foundry Co. for 24 years in various capacities, as secretary, treasurer and vice president of subsidiaries.

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NO FURTHER purchasing of equipment is contemplated at present by the National Radiator & Mfg. Corp., 2566 Grand boulevard, Detroit, which recently completed an addition to its plant. Neil McChillan Jr., is secretary of the company.

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EQUIPMENT and machinery is being set up in the new plant of the Hinson Mfg. Co., Waterloo, Iowa, manufacturer of textile automobile products, and successor to the textile automotive division of the Powers Mfg. Co. Doubled capacity has resulted from the addition. P. L. Ferguson is manager of the company.

* * *

APPROXIMATELY 100 per cent increase in facilities is being effected by the Parish Mfg. Corp., Reading, Pa., manufacturer of pressed steel automobile frames and chrome nickel steel specialties. The new plant is 200 x 580 feet, with a 70 x 140-foot wing. The company specializes in manufacture of automobile frames, heat treated. H. S. Lewis is vice president.

* * *

BRAUN-STEEPLE CO., has been organized by R. C. Steeple with offices in the Atlas building, 604 Mission street, San Francisco, as a western sales agency. The company is affiliated with H. J. Braun of Chicago one of the largest importers of German steel moldings and iron ornaments in this country. The Braun-Steeple Co. will carry a large stock in its San Francisco warehouse.

* * *

RECENT reports of merger of the Rome Wire Co. and the Diamond Wire Co., Buffalo, refer only to land values, according to H. V. Wodtke, manager of the Diamond company which is operated as a branch of the Rome Wire Co. H. T. Dyett is president, F. M. Potter, vice president, C. R. Keeney, secretary, and H. W. Barnard treasurer of the Rome company.

* * *

NEWMAN MFG. CO., Cincinnati, manufacturer of brass goods, has been incorporated with a capital of $250,000. The officers are: Samuel Newman, president; Sidney J. Newman, vice president and treasurer; Emil Newman, secretary and Walter J. Newman, second vice president. The business had been operated as a partnership since its organization ten years ago.

* * *

INCORPORATION of the Accurate Steel Treating Co. recently was undertaken to succeed the Steel Products Heat Treating Co., 12 North Campbell avenue, Chicago. The new company has $15,000 capital, and has been organized for the commercial heat treating of metals. All equipment necessary for immediate requirements has been purchased. Officers are T. E. Barker, president and manager, Ralph W. Brooks, secretary and V. M. Ollier, treasurer.

* * *

BUSINESS of Robert Mitchell Co., 64 Belair street, Montreal Que., has been taken over by a new company of the same name, the officers of which are A. M Mitchell, president and managing director; S. C. Holland, vice president, W. V. Shaw, secretary and treasurer, and H. M. Kennedy, G. A. Johnson, R. K. Stronach and F. B. Common as directors The new company will carry on business of the old organization of operating a plant for manufacture of metal products, and a brass and iron foundry.

* * *

THE plant of the Patterson Foundry & Machine Co., East Liverpool, O., has been sold to R. L. Cawood, president and general manager of the company. For many years the foundry had been operated by Monroe Patterson who recently died. Mr. Cawood had been associated with Mr. Patterson in the business for about 25 years. He had been general manager for 20 years and assumed the presidency on the death of the late B. C. Simms two years ago. The business will continue under the name of the Patterson Foundry & Machine Co. Mr. Cawood remaining at the head.

* * *

ORGANIZATION of the Standard Forgings Co., Chicago, recently incorporated, has been announced. George E. Van Hagen has been made president; E. W. Richey, vice president, C. R. Lewis, vice president and manager of sales, L. C. Ryan, vice president and treasurer, A. C. Stockton, secretary and James A. Cook, assistant manager of sales. The company has acquired the plant at East St. Louis, Ill., formerly owned and operated by the Laclede Steel Co. The company will continue production of car and locomotive axles and forgings.

* * *

MERGER of the Queen City Steel Treating Co., Cincinnati, O., and the Metallurgical Service Co., that city, under the name of the former, has been effected. E. P. Stenger, president and manager of the Queen City company, is head of the merged organizations. N. M. Salkover, formerly head of the Metallurgical Service Co. now is a member of the Queen City company. In addition to operating a modern commercial heat treating plant, the company sells heat treating supplies and equipment and is Cincinnati representative for such organizations as the American Gas Furnace Co., Case Hardening Service Co., Charles Engelhard, Inc., General Alloys Co., and others.

* * *

STEEL storage tanks with a total capacity of 10,480,000 barrels of oil are being erected in the Worthham field. The Humphreys-Boyd Oil Co., with 50 tanks, providing a combined storage of 2,750,000 barrels, leads. The Prairie Oil & Gas Co. is second with five storage tanks, each of 80,000 barrels, and 19 55,000-barrel tanks, while the Humble Oil & Refining Co. is third with 20 tanks each of 55,000 barrels capacity. The E. L. Smith Oil Co. is building four tanks, each of 55,000 barrels capacity, Sun Oil Co. four each of 55,000 barrels, Pure Oil Pipe Line Co. four, each of 55,000 barrels, Atlantic Oil & Production Co. five, each of 80,000, and two, each of 55,000, and the Simms Oil Co. five, each of 55,000 barrels ca-

pacity. Humphreys-Boyd Oil Co. has closed a contract with the gasoline Recovery Co. of Charleston, W. Va. for the construction of a casinghead gasoline plant near here to cost $150,000. The plant will have a daily capacity of 20,000,000 cubic feet of natural gas daily. The charcoal process of extracting the gasoline will be used, it is stated.

* * *

GRAY iron castings are to be made by the Crescent Foundry Co., 3200 South Second street, St. Louis, recently formed by L. W. O'Neil and Frank J. Smith. A modern plant is being constructed on South Second street, which will have a monthly capacity of from 10 to 15 tons at the start.

* * *

J A. BACHMANN was re-elected president of the Portage Iron & Wire Co., Akron, O., at the annual meeting held recently. Other officers elected are John Kroher, vice president; Henry Reudy, treasurer; J. A. Bachmann Jr., secretary and assistant treasurer. John Lind, A. Vollbracht and Walter Gruner, with the officers will constitute the board of directors.

* * *

OFFICERS and directors of the Norton Co., Worcester, Mass., re-elected at the annual meeting held at Worcester are: George I. Alden, chairman of the board of directors; Charles L. Allen, president; William L. Neilson, vice president and general manager; Aldus C. Higgins, treasurer, and the following directors, George M. Jeppson, R. Sanford Riley, Louis E. Saunders, Henry Duckworth, and John C. Spence.

* * *

BALDWIN CHAIN CO. Worcester, Mass., has been receiving bids for some time on a modern manufacturing plant to be built at Auburn, Mass. The company has outgrown the plant on Chandler street, Worcester, and ground has already been broken at Auburn for the construction of two buildings, one 160 by 480 feet and the other 50 by 120 feet. William A. Rockenfield, general manager, has caused to be believed that all the company's branches will be consolidated at the new location.

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NO NEW equipment is to be purchased for the extensions being made to the plant of the Continental Gin Co., Birmingham, Ala., manufacturer of cotton ginning machinery, according to F. E. Smith, general superintendent. A large unit under construction will be used as a warehouse while the other will be an assembly floor for cotton ginning machinery. Equipment from the other plants will be used for this space. H. K. Ferguson Co., Cleveland, is builder. L. R. Munger is president of the Continental company, Daniel Pratt, vice president; A. W. Smith, treasurer and N. W. Proctor, secretary

* * *

CONSIDERABLE increase in facilities is offered in the new building recently completed for the Barnes Drill Co., Rockford, Ill., manufacturer of all geared drills, gang drills and extension gap lathes. A 2-story building adjoining the plant was constructed, 30 x 60-foot, of fireproof materials, housing the engineering department and main offices. Extensions to the toolroom also were made, doubling its size. Additional toolroom equipment was purchased, total improvements involving an expenditure of $25,000. Mrs. B. F. Barnes is president, O. F. Spaulding, vice president, J. E Andress, secretary and treasurer and A. M. Johnson, superintendent.

* * *

THREE heat treating furnaces have been purchased by the Endicott Forging & Mfg Co., Inc., Endicott, N. Y., manufacturer of drop forgings, for its 50 x 130-foot brick plant now being constructed for heat treating and die storage. Contract for the steel work for the die storage racks has been awarded the Binghamton Foundry & Construction Co. Contract has been awarded also for a 55 x 96-foot addition to the forge shop. Two or three board hammers will be installed in this addition when work is completed. The forge shop addition will involve an expenditure of from $50,000 to $60,000. S. J. Marshall is president; T. B. Kelday, vice president and D. O. Freeman, Jr., secretary.

* * *

SALE of the Riley Stoker Co.'s plant, Canton, O., to the Canton Standard Mfg. Co., that city, was announced recently. The plant was once known as the Canton-Detroit Foundry and later was acquired by the United Machine & Mfg. Co of which Louis R. Griffith was president. W. S. Lagenbach is president of the Canton Standard company which was incorporated recently to manufacture improved steel lighting standards. The company will make cast iron parts for lighting standards and do general foundry work. Don C. Barrick, former general manager and secretary, and one of the incorporators of the Union Metal Mfg. Co., is vice president and general manager. Philip Klafter is second vice president and George Elbel is treasurer and works manager. Fred Zinc is secretary.

* * *

COMMONWEALTH EDISON CO., Chicago, is shortly to take bids on equipment for seven substations necessary for serving the electrified portion of the Illinois Central railroad entering Chicago. Beginning in 1926 the power load will be equivalent to 30,000 horsepower, to be increased later to 50,000.

Shipments of Manganese Ore Increased

Washington, Jan. 27.—The shipments of high grade manganese ore, containing 35 per cent and more of manganese, in the United States in 1924, according to preliminary figures issued by the department of the interior and compiled in the geological survey, were approximately 53,000 gross tons, in 1924, valued at $1,200,000, compared with 31,500 gross tons in 1923, valued at $874,973. This is the first year since 1920 in which the value of high-grade ore shipments passed $1,000,000.

Notable increases in shipments were made by Colorado and Montana producers. In Washington, where no production of manganese ore had been made since 1916, a large quantity was produced and shipped from the Crescent mine, Port Angeles, in 1924. This is the first time that Washington has made a notable production of manganese ore. It is largely shipments from Washington and the increase in those from Montana, from 21,916 tons in 1923 to about 34,000 tons in 1924, that has caused the increase in manganese shipments in 1924. Montana shipments alone in 1924 were 2500 tons higher than the total for the country in 1923.

The estimated manganese content of manganese ore imported is reported by the bureau of foreign and domestic commerce to have been 236,635 gross tons during the first 11 months of 1924, compared with 206,048 gross tons in 1923. Assuming an average manganese content of manganese ore imported of approximately 48-50 per cent, the imports of ore during these periods were about 473,000 gross tons for 11 months in 1924, and 412,000 gross tons for 1923. The value of the imports is given as $5,505,658 for the first 11 months of 1924, and $3,874,510 for 1923.

Shipments of domestic ore containing 10 to 35 per cent of manganese in 1924 dropped to 280,000 gross tons, valued at $862,000 from 319,666 tons in 1923 valued at $1,158,628. Shipments of ore containing 5 to 10 per cent manganese dropped to 585,000 gross tons in 1924 valued at $1,670,000, from 1,072,457 tons, valued at $3,598,327 in 1923.

Increases Ore Capacity

The Southern Coal & Iron Corp., 1414 South Penn Square, Philadelphia, has approved plans for increasing the concentrating capacity at its Rittenhouse Gap, Pa., iron ore mines to a 200-ton daily basis. The company also has concluded negotiations for leasing its 7700-acre Catawba. iron ore properties in Virginia to the Pulaski Iron Co.

Tools See Signs of Improvement

Betterment Reported in Some Districts but Buyers Still Procrastinate—Large Sales Lacking and Inquiries Predict Scattered Small Transactions—Used Equipment Drags Along Unchanged—Crane Bookings Improve

SIGNS of improvement are discernible in the machine tool market, but better sales still are far away, according to many interests. Orders for equipment continue to be placed slowly, and despite unanimous agreement that better business is in sight and coming, increased sales are lacking. Railroad orders are scattered and involve few tools, the New York Central and Pullman Car & Mfg. Co. constituting the main buyers of the past week. Automotive interests are buying little. A Cincinnati builder booked two more tools for export to Germany.

Used equipment is moving at a little better rate, but inquiries continue to drag. Price competition and liquidations continue depressing factors in this market.

Featuring crane bookings is the order for four for export to South America, by the Baldwin Locomotive Works. Many large projects continue to hang fire. Inquiries remain steady.

Automotive Interests Remain Out of Market

NEW YORK, Jan. 27.—Machine tool orders continue to be placed slowly. Business so far this month has proved a disappointment to the trade generally. It has not begun to keep pace with the improvement in the metalworking industries and has fallen far under buying this time last year. Inquiry is slightly better.

Included in current buying are two floor grinders and two 26-inch drill presses for the New York Central. Several other machines are pending for this railroad, including a 24-inch and a 17-inch engine lathe, and a shaper. The Pullman Car & Mfg. Corp. has closed on a 48-inch car wheel borer with an eastern builder. The General Electric Co., Schenectady, N. Y., is actively figuring on an internal grinder, and a 36-inch and a 14-inch engine lathe.

Crane activity has been dominated this week by locomotive crane buying. More orders for this type of equipment have been placed than in sometime, while overhead crane orders on the other hand have been scattered. A feature is an order for four or five locomotive cranes for the Baldwin Locomotive Works, for shipment to South America. Demand for foundry equipment contineus dul.

A number of 5-ton cranes used for unloading general cargoes in an important port in South America, which were damaged recently by storm, likely will be replaced by new ones, according to a report to the department of commerce, Washington, from Trade Commissioner Clark, at Montevideo.

Quiet Still Unbroken

CLEVELAND, Jan. 27.—Inquiries took a decided drop in the machine tool market last week, making activity the lighest, in some cases, since before elections. Orders continue scattered and for single tools. New York Central added several tools to its inquiry list. Other railroads are quiet. Automotive demand is for replacement and is mostly for accessory manufacturers rather than builders. Local inquiries are fewer than those from the surrounding territory. Foreign sales were negligible last week.

Used equipment continues at a slow and unsatisfactory pace. Some fair sales were made during the past week, but average of business continues below normal. Prices on standard tools still are weak.

Crane builders are receiving good inquiries but sales have fallen off slightly, fluctuating from week to week.

Large Buyers Procrastinate

PITTSBURGH, Jan. 27.—Since the first of the year machine tool and equipment buyers have apparently been too busy with inventories, financial statements, income and other tax matters, etc., to give attention to their equipment needs. Sales during the past week

Crane Awards and Inquiries of the Week

Orders Placed

Four or five locomotive cranes for the Baldwin Locomotive Works for shipment to South America, reported placed with the Industrial Works.

Four electric overhead cranes for the Cincinnati plant of the General Electric Co., Schenectady, N. Y., to the Northern Engineering Co.; specifications call for one 3-ton and one 5-ton crane, 18-foot, 6-inch span, and one 3-ton and one 10-ton crane, 19-foot span.

Single Installations

30-ton locomotive crane for the River Rouge plant of the Ford Motor Co., awarded, contract reported placed with the Industrial Works.

25-ton electric locomotive crane for C. J. Mallett, Westchester Village, N. Y., to the Browning Co.

20-ton electric locomotive crane for the Gibney Iron & Steel Co., Phillipsburg, N. J., to the Link-Belt Co.

20-ton locomotive crane for the Rippler Coal Co., Minersville, Pa., to the Orton & Steinbrenner Co.

15-ton crane, Wheeling Steel Corp., Wheeling, W. Va., to an Ohio crane builder.

10-ton crawler crane for a sand and gravel dealer, Long Island City, N. Y., to the McMyler Interstate Co.

10-ton electric overhead crane for the United Heating & Boiler Co., Hammond, Ind., to the Bedford Foundry & Machine Co.

5-ton electric crane, 83-foot span, purchased by the Industrial Engineering Co., 30 Church street, New York, for installation at North Bergen, N. J., from the Milwaukee Electric Crane & Mfg. Co.

2000-foot tramrail system for the Flint Motor Car Co., Flint, Mich., to the tramrail division of the Cleveland Crane & Engineering Co.

1500 feet of tramrail system for a stone quarry in Beloit, Wis., to the tramrail division of the Cleveland Crane & Engineering Co.

1500-foot tramrail system for the Kellogg Toast ed Corn Flakes Co., Battle Creek, Mich., to the tramrail division of the Cleveland Crane & Engineering Co.

Electric traveling crane awarded by the city building commission, Martins Ferry, O., to the Cleveland Crane & Engineering Works.

Used overhead crane for installation in the stone yard of S. Puzzutiello & Co., Brooklyn, N. Y., to an unnamed seller; the company inquired for a 7½-ton electric crane, 30-foot span.

Used crane with shovel for the George E. Woods Co., Inc., Pittsburgh, general contractor; awarded the Erie Steel Construction Co.

Orders Pending

Two locomotive cranes for Pennsylvania railroad, maintenance of way department, Pittsburgh; bids rejected, new bids to be advertised.

Cranes for the new plant of the Pittsburgh Steel Products Co., Allenport, Pa.; bids about to be asked.

Cranes for Memphis, Tenn., terminal for the Jones & Laughlin Steel Corp.; bids being taken.

1-meter gage, 8-wheel locomotive crane, without riggers, 50-foot boom, capable of lifting three tons at a 45-foot radius, for the Andian National Corp., 342 Madison avenue, award expected shortly.

have been negligible. Large lots of equipment stil lhover in the background. Westinghouse Electric & Mfg. Co. is understood to have started on its lists. Carnegie Steel Co., the National Tube Co. and other large buyers still defer action. A large locomotive can slotter was purchased by a boiler company and other users bought a motor driven universal cutter and tool grinder, a 16-inch joiner, drill presses, heavy grinders, etc. Lathes, radials, milling machines and general machine tool orders are lacking. The Pennsylvania railroad has additional inquiries out for Altoona, Pa. The Patterson Foundry & Machinery Co., East Liverpool, O., has abandoned its expansion project for which a large list of machines recently was issued.

While one or two crane orders have been placed, the majority of larger projects continues to be held over.

Spasmodic activity is noted in foundry equipment.

Cincinnati Market More Active

CINCINNATI, Jan. 27.—Planers continue the most active of heavier machine tools, one Cincinnati company having a score of live inquiries and another a dozen. The G. A. Gray Co. has an order on its board for the Edgar Thompson works of the Carnegie Steel Co. and for 36 and 42-inch machines from its agent in Germany. Inquiry for approximately 10 milling machines and a like number of lathes and boring mills is reported. The Louisville & Nashville railroad is inquiring for a miscellaneous list of tools involving shapers, lathes and radial drills.

Demand for used machinery is better although many buyers experienced a lull last week as compared with business during the past month. Small single tool orders are the rule. Liquidation of manufacturing companies is slowing the resale market somewhat although equipment sold in dissolution is sometimes priced higher than figures the local dealers are quoting.

Manufacturers Find Better Sales

BOSTON, Jan. 27.—New England machine tool dealers find orders slower than expected, but manufacturers report encouraging increases in orders during the past week. One manufacturer of grinders has had the best week in several months and a lathe manufacturer reports a widespread demand although principally coming from west of the Hudson. Sales of tools have been mostly for individual units, including a special shaper, and two lathes. A Springfield plant took several tools and is in the market for further equipment to the value of about $20,000. The General Electric Co. has a list totaling from $20,000 to $25,000 for its Lynn, Mass., works.

Used tools are moving more freely. Two large auction sales in Connecticut are scheduled for next week.

Small Buyers Inquiring

CHICAGO, Jan. 27.—Larger buyers of machine tools are not market factors at this time and while buying by small users is fair the volume is not great. Railroad lists have not yet developed. Considerable "shopping" is being done even by the one or two-tool buyers.

Sellers note a distinct upward tendency in price over the past few months. One manufacturer of lathes has increased his prices $100 and $150 on two models. A majority of tools have not moved in price in the past half year but whatever changes have been made have been upward. The school board again is reported close to a decision on the 24 lathes for the Tilden technical high school. One machinery house has deals for several planers nearing a head. Inquiry and sales have tended downward since Jan. 1.

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

ALBANY-DECATUR, ALA.—Holland Blow Stove Factory, Market street near Tennessee river, was damaged some time ago by a fire of undetermined origin. Repairs will be made shortly, involving replacement of damaged machinery.

ANDALUSIA, ALA.—Andalusia Casket Co. has been incorporated with $50,000 capital to manufacture and deal in caskets, vaults, etc., by J. M. Robinson, O. L. Benson, Z. F. Holmes and H. C. Teate.

GADSDEN, ALA.—Gadsden Pipe Works has plans for constructing new foundry and shops for manufacture of cast iron pipe. Otto Agricola is president.

GLENDALE, CALIF.—Kinner Airplane & Motor Corp. will construct a $25,000 addition to its plant increasing production approximately 125 per cent.

LOS ANGELES—Hydraulic Tool Co., Inc., 900 East Sixty-first street, will construct a $100,000 plant, for enlarged production.

LOS ANGELES—W. C. Hendrie & Co., Inc., has awarded contracts to Hamm & Grant, Inc., 607 Ferguson building, industrial engineer, for preparing plans for a 2-story, class A, manufacturing plant and warehouse at East Fourth and Towne streets.

LOS ANGELES—Kleiber Motor Truck Co., Eleventh and San Pedro street, will erect a plant to cost $150,000 and will increase its production considerably.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

NEW LONDON, CONN.—Karvan Co., Inc., has been formed with $50,000 capital, to begin a machinery and tool manufacturing business by Philip Z. Hankey, John F. Sullivan and Ella M. B. Getchell, all of New London.

MIAMI, FLA.—Contractors Supply Co. has been incorporated for $100,000 to handle distribution of equipment and machinery in Florida, by Charles L. Pettit as president and P. G. Prevatt, 1542 North Bayshore drive, as secretary.

WEST PALM BEACH, FLA.—Palm Beach Plumbing Supply Co. plans constructing 2-story warehouse for which contracts have been awarded. Additional equipment will be purchased. Julius Lax is president of the company.

COLUMBUS, GA.—J. T. Knight & Co. has been formed with $200,000 capital, to handle metals on a wholesale basis for southern distribution. J. B. Knight is an official in the company.

LINCOLNTON, GA.—Georgia Copper Co. plans to improve and enlarge its properties near here, increasing its mill capacity to 200 tons daily. Control of the company is in the hands of E. W. Kelly & Co., 51 Exchange place, New York.

CHICAGO—The Standard Stamping & Perforating Co., 4222 West Harrison street, has awarded construction contracts to L. Balkin, 1852 West Austin street, for a 1-story plant.

CHICAGO—E. P. Steinberg, 109 North Dearborn street, is taking bids for a 1-story plant at Indiana avenue and Twenty-fifth street, for the J. G. Anderson Auto Reconstruction Co.

CHICAGO—South End Plating Works, Inc., 53 West Jackson boulevard has been incorporated for $20,000 to do nickel and brass plating work, by Paul E. Arnold, J. A. Royer and H. P. Millns.

CHICAGO—Wiswell Radio Co., 33 West Kinzie street, has been incorporated for $50,000 to manufacture and deal in radios, musical instruments, etc., by M. C. Martin, L. C. Wiswell and Harry D. Schoenwald.

CHICAGO—Western Automatic Sprinkler Co., 3326 Willmore street, has been incorporated for $100,000 to manufacture and deal in sprinkler equipment, by John J. Tyne, John Caul and Nicholas A. Hermes.

KENDALLVILLE, IND.—A large power plant is contemplated for construction here. Promoters are Edward Schultz, Schultz Bros. Investment Co. and Roy Husselman, consulting

Recent Industrial Business Changes

APPOINTMENT of 11 district representatives is announced by the Morgan Engineering Co., Alliance, O., designer, manufacturer and contractor of electric traveling cranes, rolling mill machinery, ship building plants, etc. Following are the representatives and their headquarters: C. O. Cromwell, 2230 First National Bank building, Detroit; F. E. Bausch, 1105 Chemical building, St. Louis; Duncan A. MacLeod, 918 Ellicott Square, Buffalo, N. Y.; R. R. Glover, 2310 Union Central building, Cincinnati; W. R. McDonough & Co., National City building, Cleveland; McMullen Machinery Co., 64 Ionia avenue, Grand Rapids, Mich.; Millholland Sales & Engineering Co., 225 Indiana Terminal Warehouse building, Indianapolis, Ind.; C. B. Davis Engineering Co., Brown-Marx building, Birmingham, Ala.; P. I. Perkins Co., 110 High street, Boston; Stewart H. Ford, Mutual building, Richmond, Va., and Dravo-Doyle Co., Schaff building, Philadelphia.

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Automobile Leafless Spring Corp., New York, has changed its name to Leopard Automobile Products Corp.

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Moltrup Steel Products Co., Beaver Falls, Pa., has appointed W. J. Patterson Co., Monadnock building, San Francisco, as its representative in that district.

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Halligan Pipe & Supply Co., 900 South Campbell avenue, Chicago, announces a change in its name to the Federal Pipe & Supply Co. T. A. Callaghan is general manager.

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Pittsburgh Valve Foundry & Construction Co., Pittsburgh, has announced the appointment of R. J. Crozier Co., Fuller building, Philadelphia, as its sales representative in the Philadelphia district.

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The Berkeley Steel Foundry Co., Berkeley, Calif., has been organized and has taken over the business and plant of the Greene Steel Casting Co. located at Second and Camelia streets, that city.

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Barton R. Shover, Oliver building, Pittsburgh, consulting engineer, has taken over the engineering business of the late Harry F. Randolph and will operate it in connection with his own interests.

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Swind Machinery Co., Philadelphia, distributor of tools and machinery, announces the opening of an office in Baltimore at 902 Standard Oil building, Franklin street and St. Paul place. L. H. Swind is president.

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Danly Machine Specialties, Inc., 4911 Lincoln avenue, Chicago, announces the opening of two warehouses and offices at 35 Wilbur avenue, Long Island City, New York and 1537 Temple avenue, Detroit. The capacity of the Chicago plant was recently tripled.

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J. W. Judge, Call building, San Francisco has been appointed Pacific coast representative for the Ferry Cap & Set Screw Co., Cleveland, manufacturer of screws and screw machine products—and will cover the states of Oregon, Washington and California.

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Sales organizations of the Warren Gear Products Co., Warren, O., the Burgess-Norton Mfg. Co., Geneva, Ill., and Dall Motor Parts Co., Cleveland, have been consolidated. Each business will be conducted separately, consolidation effecting distribution only.

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The E. L. Essley Machinery Co., 551 Washington boulevard, Chicago, has been appointed by the Foster Machine Co., Elkhart, Ind., as exclusive sales representative in the Chicago territory for the turret lathes, screw machines and wrenchless chucks manufactured by the Foster company. E. L. Essley is president of the Essley company.

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J. E. Moss Iron Works, Wheeling, W. Va., is to absorb the Riverside Bridge Co., Martins Ferry, O., and the latter company to be dissolved. The Moss works took over the Riverside organization in February, 1924. Consolidation of the plants will be effected.

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Elevator Supplies Co., Inc., Hoboken, N. J., has opened an office at 119 Spring street, Atlanta, Ga., to handle sales in the states of Georgia, Florida, Alabama, South Carolina and Tennessee. W. A. Crowe, formerly in charge of the Philadelphia district, takes charge of the new southern office. The company manufactures elevator signals and accessories.

* * *

C. G. Claussen & Co., have been organized by Carl G. Claussen and have taken over the business of Jno. L. Key, Inc., for some years prominently identified with the iron and steel trade on the Pacific coast as selling agent for domestic and foreign mills. Mr. Claussen joined the Jno. L. Key, Inc., organization two years ago. The new company is taking over the office of the Key company in the Call building.

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The Hydrotator Co., 1328 Chestnut street, Philadelphia, has acquired the patents and engineering business of L. C. Trent, who has been operating as the L. C. Trent Engineering Co. Neither the Hydrotator Co. nor the L. C. Trent company are affiliated with the Trent Process Corp., the Trent Superfuel Co. or Pittsburgh Trent Co. Walter L. Remick, formerly engineering editor of the Keystone Mining Catalogs, will assume active management of the Hydrotator Co. after Feb. 1.

engineer.

ASHLAND, KY.—Standard Steel Supply Co. has been incorporated for $50,000 by A. J. McCullough, A. A. and R. A. McCullough.

BATON ROUGE, LA.—Liberty Battery Mfg. Co. has been incorporated to manufacture and deal in batteries, with $80,000 capital stock.

PORTLAND, ME.—Thomas-Adams Co. has been incorporated with $200,000 capital, to manufacture and deal in snow plows, wood and metal novelties, tools and machinery.

PRESQUE ISLE, ME.—The Presque Isle Foundry has been incorporated for $50,000 with Samuel M. Tuck as president

BOSTON—Boston Stove Exchange, 55 Merrimac street, is in the market for a pipe cutting and threading machine.

BOSTON—The Motor Radio Corp. of America, has been incorporated for $84,000 to manufacture machinery and supplies and radiators, by William J. Keith, Muriel N. Schlegel and Mary M. Keith.

SPRINGFIELD, MASS.—The Leshure Co.,

55 Grosvenor street, has been formed to manufacture rubber, bakelite and silicate process grinding wheels.

SPRINGFIELD, MASS.—Hastings & Schoen Co. has been incorporated for $45,000 by Charles R. Hastings, West Springfield, and Irving Schoen and Alfred D. Scott of Springfield, to conduct a brass foundry and pattern manufacturing business.

SPRINGFIELD, MASS.—The Rolls Royce Co. of America, Inc., has awarded contracts to the Austin Co., Cleveland and New York, for a repair shop and storage building to be constructed at Harris and Sunewick street, Long Island City. The structure is to be completed in 45 working days.

WESTFIELD, MASS.—S. Simkowitz, 246 Elm street, is in the market for tools and equipment for a garage and automobile repair shop.

BATTLE CREEK, MICH.—Globe Mfg. Co. has been incorporated for $100,000 for the acquisition, manufacture, assembling and sale of all kinds of machinery, by Harley M. Dunlap, 58 Grant street, Rhoda S. Dunlap and William E. Dunlap.

BEVERLY, MICH.—Certainteed Products Corp. has awarded contracts to the Conklin Construction Co., 220 Ashton building, Grand Rapids, for a 1-story, 70 x 240-foot warehouse. J. H. Mathis, Avon avenue southwest, is superintendent.

BIRMINGHAM, MICH.—McBride Hardware Co. has been incorporated for $60,000 to manufacture and sell hardware, by J. Harry McBride, 608 South Woodward avenue, Edith McBride and Russell McBride.

BOYNE CITY, MICH.—Boyne City Portland Cement Co. has been incorporated for $2,000,000 and plans constructing buildings and installing of complete equipment. W. H. White is president, L. W. Siegel, secretary and treasurer and F. B. Grard, general manager.

DETROIT—Pittlekow Heating & Engineering Co., 312 West Kaebed street, has awarded contracts for constructing 2-story, 70 x 80-foot shop and office building.

DETROIT—Detroit Woodcraft Corp., 515 Garfield building, has been incorporated for $50,000 to manufacture and deal in wood and metal products, by Ormar L. Trainor, 89 Connecticut, C. B. Camp and Clare H. Ogden.

DETROIT—H. & H. Wheel Service, Inc., has been incorporated for $50,000 to manufacture and deal in automotive parts, tools, accessories, etc., and to operate repair shops, by Rufus H. Hiles, 2694 West Euclid avenue, Clare L. Hiles and William E. Essery.

DETROIT—Albert Kahn, Inc., 1000 Marquette building, is architect for a 2-story, 80 x 184-foot garage and office for the Paige Detroit Motor Car Co. W. B. Cady, McKinstrey avenue and Fort street, is secretary. W. E. Wood, 1805 Ford building, is general contractor.

GRAND RAPIDS, MICH.—Weiner Cab Co., has awarded contracts to J. Hermann & Son, Perkins building, for 2-story, 50 x 100-foot side addition to the plant of mill construction. Nathan Weiner, 447 Ottawa avenue, is president of the Cab company. Frank P. Allen & Co., 463 Houseman building, are architects.

GRAND RAPIDS, MICH.—Grand Rapids Body Co., 1430 Front avenue northwest, has been formed with $1000 capital and 100,000 shares no par value stock, to manufacture and deal in motor vehicles, bodies, accessories, etc., by Bert M. Fox, George W. Fortier and William B. S. Matheson.

GRAND RAPIDS, MICH.—Henry H. Turner and Victor E. Thebaud are preparing plans for the Burton grade and junior high school buildings in Buchanan avenue and Kirtland street the latter structure to contain laboratories and other vocational training rooms and shops. Bids will be opened on construction in about 90 days.

PONTIAC, MICH.—Charles S. Inch, 30 East Lawrence street, plans constructing 1-story, 40 x 55-foot plant for use as repair shop and show room.

DULUTH, MINN.—J. J. Wagenstein, 310 Palladio building is architect for a garage to be constructed for an undisclosed interest here.

KANSAS CITY, MO.—Vilter Mfg. Co. has purchased a site at 208 West Nineteenth street, for constructing a warehouse and assembling plant. H. F. Flemming is district manager.

KANSAS CITY, MO.—Walter Mfg. Co., 234 Finance building, has awarded contracts to Morley Bros., Dwight building, for 1 and 2-story, 50 x 125-foot brick and steel manufacturing plant. H. F. Fleming is manager of the Walter company. H. Van Unwerth, 708 Finance building, is architect and engineer.

NORTH KANSAS CITY, MO.—Wabash railroad plans construction of repair shops and yards here. J. E. Tassig, Railway Exchange building, St. Louis, is president. R. H. Howard, same address, is chief engineer.

ST. LOUIS—Stacold Co., Inc., has been incorporated for $10,000 to manufacture and deal in refrigerating machinery, by E. McMullen, J. C. Schott and J. F. Hoffman, 7328 Richmond place.

ST. LOUIS—Loose Leaf Metals Co. has been incorporated for $50,000 to manufacture and deal in metal products, by J. C. Dawson, P. A. Gosier and F. B. Young, 4254 McRee street.

ALLIANCE, NEBR.—George H. Breckner will move into a new building to be constructed on West Third street for use as a welding shop.

ELIZABETH, N. J.—Lowndes, Gomez & Lowndes, Inc., 1160 East Jersey street, recently was incorporated for $150,000 to manufacture iron, steel and copper products.

IRVINGTON, N. J.—Arthur B. Shepard Corp. has been incorporated with $150,000 capital to operate a steel and sheet metal works at Chanceller avenue and the Lehigh Valley railroad tracks.

NEWARK, N. J.—Director Raymond of the city department of public works has announced the sale of approximately seven acres on the south side of Port Newark Terminal to Adolph Segal, representing a sugar refinery company. It is understood that work will be started at once on the erection of a large plant, which will eventually require an outlay of $6,000,000. Mr. Segal refused to name those interested in the purchase.

PATERSON, N. J.—Robert Taylor & Son, 240 Slater street, have been incorporated with $100,000 capital, to deal in iron, steel, coke, copper, etc., and their products.

ROCHELLE PARK, N. J.—A $30,000 machine shop addition will be erected here by the Sandow Tool Co., from plans prepared by Gretsch & Creamer, Bible House, New York. The Cannie Construction Co. has been awarded the general contract.

BROOKLYN, N. Y.—The Brooklyn Union Gas Co., 176 Remsen street, plans constructing new machine shops, service and mechanical buildings.

BROOKLYN, N. Y.—Rintelen Nickel Alloy, Inc., has been incorporated for $100,000 to manufacture metal products by Joseph C. Rintelen, 133 Fifty-seventh street.

BROOKLYN, N. Y.—Colo Metal Products Co., manufacturer of electric switch cabinets of pressed steel, has completed its 4-story plant at Crescent and West streets and Harris avenue.

BUFFALO, N. Y.—Emerson Machine & Tool Corp. has been incorporated for $10,000 by S. F. Crosman, T. C. Fitzgerald and D. J. Candee, with Lewis & Carroll, as attorneys.

COLONIE, N. Y.—Adirondack Steel Foundries Corp. has been incorporated with 11,000 shares prior preferred stock $10 par value; 3500 shares $100 par preferred and 5000 shares no par value common, by A. G. Wright, F. W. Sherman and C. A. Davis, with B. G. Highley, 100 Broadway, as attorney.

EAST BUFFALO, N. Y.—Delaware, Lackawanna & Western railroad, has plans for constructing a 1-story, 105x960-foot railroad shop at East Buffalo yards. William H. Truesdale is president of the road with offices at Hoboken, N. J. Frank Neis is architect. G. F. Ray, Hoboken, is engineer.

FREEPORT, N. Y.—Plugfit Piston Co. has been incorporated for $20,000 to manufacture automobile parts, by R. Kramer, A. E. Rummel, and H. L. Schaefer, 55 Liberty street.

NEW YORK—Weiss Iron Works has been formed with $10,000 capital, by H. Kantor, and A. Weiss, with N. Tolk, 58 Essex street, as attorney.

NEW YORK—Dunn Metal Ceiling Co. has been incorporated for $5000 by N. and B. Dunn and H. Himovitch, with E. P. Sobel, 141 Broadway, as attorney.

NEW YORK—Metals Refining Corp. has been organized with 1000 shares no par value stock, by C. Whelan and L. Bierman, with J. Whelan, 50 Church street, as attorney.

NEW YORK—Bramus has been incorporated with 1000 shares no par value stock, to manufacture and deal in tools and machinery, by E. G. Rogan, J. A. Boyle and E. N. Scheiberling, Albany, N. Y., as attorney.

NEW YORK—Farrell & Murphy have been incorporated for $20,000 to manufacture and deal in motor parts, by J. C. Farrell, J. F. Murphy and W. J. Bradshaw, with Wing & Wing, 27 Cedar street, as attorneys.

NEW YORK—Iron Craft has been incorporated for $30,000 by J. I. Lichterman, A. Levy and T. Siegel, to manufacture gas fixtures and other metallic products, with F. J. Knorr, Albany, N. Y., as attorney.

NEW YORK—Bieber Bros. have been incorporated for $10,000 to manufacture metalware, by H. and P. and I. Bieber, with Mackinsley & Kornfeld, 198 Broadway, as attorneys.

NEW YORK—Forban Mfg. Co. has been incorporated for $5000 for manufacture automotors, by H. and M. Epstein and J. F. Haas, with C. V. Halley Jr., 505 Tremont avenue, as attorney.

NEW YORK—United Hardware Tool Corp. has been incorporated for $80,000 by E. R.

(*Continued on Page 372*)

Warehouse Steel Prices

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.20c
New York	3.24c
Philadelphia	3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.35c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	3.20c
St. Louis	3.15c

REINFORCING BARS

Boston	3.25c to 3.50c
Buffalo	3.40c
Chicago	2.60c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles, C. L.	3.60c
Los Angeles, L. C. L.	4.00c
New York	2.80c
Philadelphia	2.80c
Pittsburgh	2.30c to 2.40c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.25c
New York	3.34c
Philadelphia	2.90c to 3.10c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.20c
Detroit, 3/16-inch	3.45c
Los Angeles	3.25c
New York	3.34c
Philadelphia	2.90c to 3.10c
Philadelphia, 3/16-inch	3.06c to 3.26c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	4.05c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.45c to 3.76c
Detroit	3.95c
Los Angeles	4.20c
New York	3.89c
Philadelphia	3.85c
Portland	4.50c
San Francisco	4.20c
Seattle	4.50c
St. Louis	3.90c
St. Paul	4.05c

NO. 28 BLACK SHEETS

Boston	5.10c
Buffalo	4.75c
Chicago	4.50c
Cincinnati	4.55c
Cleveland	4.35c to 4.55c
Detroit	4.65c
Los Angeles	5.25c
New York	4.60c
Philadelphia	4.85c
Portland	5.00c
San Francisco	5.25c
Seattle	5.50c
St. Louis	4.65c
St. Paul	4.85c

NO. 28 GALVANIZED SHEETS

Boston	6.15c
Buffalo	5.85c
Chicago	5.50c
Cincinnati	5.65c
Cleveland	5.45c to 5.65c
Detroit	5.75c
Los Angeles	6.25c
New York	5.60c
Philadelphia	6.00c
Portland	6.00c
San Francisco	6.25c
Seattle	6.50c
St. Louis	5.65c
St. Paul	5.65c to 5.90c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	4.20c
New York	3.99c
Philadelphia	3.95c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.40c
Chicago	4.15c
Cleveland, 1-inch and wider No. 20 and heavier	3.85c
Cleveland, narrower than 1-inch	4.35c
Detroit	4.30c
New York	4.49c
Philadelphia, 1-inch and wider	3.95c
Philadelphia—narrower than ¾-inch	4.45c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.70c

COLD FINISHED STEEL

Boston (shapes)	4.65c
Boston (rounds)	4.15c
Buffalo (rounds)	4.20c
Buffalo (shapes)	4.70c
Chicago (shapes)	4.30c
Chicago (rounds)	3.80c
Cincinnati (rounds)	4.05c
Cincinnati (shapes)	4.55c
Cleveland (rounds)	4.00c
Cleveland (shapes)	4.50c
Detroit (rounds)	4.10c
Detroit (shapes)	4.60c
Los Angeles (rounds)	4.75c
New York (rounds)	4.15c
New York (shapes)	4.65c
Philadelphia (rounds)	4.15c
Philadelphia (shapes)	4.65c
Pittsburgh (rounds)	3.80c
Pittsburgh (sq. hex. and flats)	4.30c
Portland	4.50c
San Francisco (rounds)	5.25c
Seattle (rounds)	4.75c
St. Paul (rounds)	4.05c

FOREIGN IRON AND STEEL

Swedish hollow drill steel New York, duty paid	15.00c
Swedish iron bars round New York, duty paid	6.75c
flats and squares. New York, duty paid	7.00c

WELDED PIPE

Discounts from warehouse, New York City

Standard Steel Pipe
(Subject to Shading)

	Black	Galvanized
¼-⅜-inch butt	—31	+ 2
½-inch butt	—41	—24
¾-inch butt	—46	—32
1/3-inch butt	—48	—34
3½-inch lap	—44	—30
7-8-inch lap	—41	—11
9-10-inch lap	—35	— 8
11-12-inch lap	—34	— 6

Wrought Iron Pipe

	Black	Galvanized
¼-⅜-inch butt	+44	+78
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1-1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
3-6-inch lap	—11	+ 6
7-12-inch lap	— 3	+16

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 55 per cent iron	$5.65
Mesabi bessemer, 55 per cent iron	5.40
Old Range nonbessemer, 51½ per cent iron	4.90
Mesabi nonbessemer, 51½ per cent iron	4.75

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, c.i.f. Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.50 to 10.00
Algerian low phosphorus, 52 to 54 per cent	10.50 to 11.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.00 to 9.00
Algerian foundry and basic, 50 to 54 per cent	8.00 to 9.00

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent....nominal
Indian, minimum 47 per cent....nominal
Caucasian, 53 to 55 per cent ....
.....Ordinary, nominal c.i.f. tidewater
.....Washed, 42 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.50 to 20.00
Washed gravel, imported duty paid eastern tidewater, per net ton	17.50 to 18.50

In 1600 plants Where Quality is higher than price

How Many Parts To a Pot—or Box

must be answered from two angles — for *real* economy: The unparalled long life of "Nichrome" Castings is one answer; the production of uniform quality in the carburized case is the other answer.

The Steel Products Co. gets both through the use of "Nichrome" Carburizing Containers, which is one big reasons why "Quality is higher than price" in their heat treating work, as it is also in the widely varying processes of 1600 other plants where "Nichrome" Castings are used.

Complete data on physical and chemical characteristics are given in our New 120-page Book; also an up-to-date treatise on the fundamentals of carburizing and case hardening. Ask for it.

DRIVER-HARRIS COMPANY
HARRISON, NEW JERSEY
Chicago - Detroit England - France

TRADE MARK REG. U. S. PAT. OFF.

Nichrome

-the castings of proven performance

Construction and Enterprise

(Continued from Page 369)

and S. Wilner and A. Bollerman, to manufacture and deal in tools and metal specialties. J. Rieger, 256 Broadway, is attorney.

NEW YORK—Pascal Rail Joint Co. has been incorporated for $30,000 by S. Koerner, F. A. Regan and S. Gross, with Guggenheimer, Untermyer & Marshall, 120 Broadway, as attorneys.

NEW YORK—Manhattan Enamel Ware Co. has been formed with $150,000 capital, to manufacture and deal in metal products, by D. Nadelson, F. Freeman and J. Morrison, with Marks & Marks, 358 Fifth avenue, as attorneys.

NEW YORK—Bell-Knott have been incorporated for $20,000 to manufacture iron and steel and their products, by F. E. Bell, G. C. Knott and M. A. Thoms, with Ingraham, Page & Morab, 14 Wall street, as attorneys.

NEW YORK—Onyx Electric Co. has been formed with $50,000 capital, to manufacture and deal in electrical specialties, with P. I. Bernstein, G. Feinman and F. Goldstein as incorporators and Phillips, Jaffe & Jaffe, 1170 Broadway, as attorneys.

NEW YORK—Nu Tractor Motor Corp. has been incorporated with 100 shares no par value stock, to manufacture and deal in engines, by C. E. Bonner, R. G. Kincaid and W. P. Tanner, with S. Ryan, Albany, N. Y., as attorney.

NEW YORK—Blair Tool & Machine Corp. has been organized with 300 shares $100 par preferred stock and 1000 shares no par value common, by F. H. Butehorn, F. C. Taylor and H. B. Holland, with F. J. Knorr, Albany, N. Y., as attorney. Blair Tool & Machine Works, has been dissolved.

OSSINING, N. Y.—Saunders Ayers Corp. has been incorporated for $50,000 to operate automobile repair shop and blacksmith shop, by W. G. Saunders, G. A. and E. A. Ayers, with T. G. Barnes, as attorney.

PATCHOGUE, L. I., N. Y.—J. R. S. Specialties Mfg. Co. has been incorporated for $100,000 to manufacture lighting apparatus, by J. R. Smith, O. and M. Brauner with H. J. Schoenfeld as attorney.

WATERLOO, N. Y.—Waterloo Bodies has been incorporated with $175,000 capital stock, to manufacture motor vehicles, by F. G. Stewart, L. S. Zartman and J. E. Becker, with E. J. Cook, Geneva, as attorney.

CHARLOTTE, N. C.—Hood Foundry Works has been incorporated with $100,000 capital, to establish and operate a foundry and shops here, by W. M. Hood, T. L. Talbert, Jr., and others, the latter being at 1708 Euclid avenue.

CHARLOTTE, N. C.—Davis Septic Tank Co. manufacturer of steel, iron and other products, has been incorporated with $100,000 capital by J. B. Davis, Pineville; T. R. Threatt, H. C. Rogers and A. J. Deal.

SALISBURY, N. C.—Holland Mfg. Co. has established a plant here for the manufacture of agricultural implements, the company having been formed in December with $75,000 capital, with S. O. Holland as president.

AKRON, O.—Cramer Cylinder Regrinding Co. has been incorporated for $35,000 to do general automobile repair work, by Joseph A. Cramer and Harry R. Kerwin.

AKRON, O.—Akron Aluminum Spinning Co. has been incorporated for $4500 to manufacture metal products, by Frank Stolitzka, S. P. Strickland, Dolores Cox, J. L. Edwards and I. S. Ballard.

CINCINNATI—Tressel Plating Co. has been incorporated for $25,000 by Joseph J. Tressel and Louis G. Robinson.

CINCINNATI—American Front Wheel Brake Co. has been incorporated with $200,000 capital stock, by Mathew P. Berel and Ferdinand J. Woll to manufacture automotive units.

CLEVELAND—Bennett Furnace & Sheet Metal Co. has been incorporated for $10,000 by Walter L. Seelbach and J. M. Joslyn.

CLEVELAND—DeZort Radiator Co., 10007 Quincy avenue, has awarded contracts for building a 1-story, 40x60-foot plant. F. DeZort is president.

CLEVELAND—France Mfg. Co., 1036 Berea road, manufacturer of rectifiers, has retained O. N. Chamberlin, 1222 West Clifton boulevard, as architect for 2-story, 58 x 93-foot plant. Lester E. France is president of the France company.

COLUMBUS, O.—Non Glare Tilter Light Co., has been incorporated for $25,000 to manufacture and deal in automobile accessories and parts, by W. J. Benton and W. H. Renhart.

MARTIN'S FERRY, O.—The Extruded Metal Products Co. has been incorporated for $75,000, by J. W. Millard, George Cooke, Gordon D. Kinder, W. V. Frazier, Jr., and P. R. Hoge.

SPRINGFIELD, O.—Continental Mfg. Co. has been incorporated for $100,000 by A. R. Hill, Hubert D. White, John M. Cole, Thomas D. Hodge and H. E. Lawrence.

TOLEDO, O.—Mellott Furnace Co. has been incorporated for $25,000 by Harry B. Melott and B. M. Welter.

TOLEDO, O.—Bunting Brass & Bronze Co., 715 Spencer street, has retained Mills, Rhines, Bellman & Nordhoff, 1234 Ohio building, as architects for a plant to be constructed shortly. J. W. Bunting is president of the Bunting company.

TOLEDO, O.—H. J. Spieker Co. has started constructing the $100,000 addition for the Valve Bag Co. of America at Summit street and Suder avenue. The plant will be 3-story, 100 x 120. C. H. Hartman is vice president. *Noted Dec. 4.*

WATERFORD, O.—Waterford Mill & Supply Co. has been incorporated for $20,000 by A. E. Roberts and J. L. Deering.

PORTLAND, OREG.—Baker Mfg. Co., 263 Sixteenth street, manufacturer of electrical fixtures, was damaged by fire recently.

BLOOMSBURG, PA.—Car repair shops of the North Branch Transit Co., recently damaged by fire will be rebuilt, according to present plans.

PHILADELPHIA—F. A. North Co., 1306 Chestnut street, has Amos W. Barnes, Perry building architect, preparing plans for a 5-story, 28 x 178-foot building for the manufacture of pianos.

REYNOLDSVILLE, PA. — Reynoldsville Burial Case Co. contemplates constructing $20,000 plant.

ATHENS, TENN.—A new industry for the production of all classes of cooking ranges and heaters, pressed steel and cast iron will start here shortly. Paid in capital is $50,000. A brick, steel and concrete building will be constructed. R. J. Fisher is president, H. E. Walthaw, vice president and J. G. Ferrell, general manager, secretary and treasurer.

CHATTANOOGA, TENN.—Somerville Iron Works, Somerville, N. J., machinist and founder, will enlarge its local branch considerably in 1925. A new unit to the main foundry is to be constructed and new equipment installed, increasing present capacity about 25 per cent.

KNOXVILLE, TENN.—Fulton Co., Kingston Pike, is reported as planning expenditure of $15,000 on plant enlargements.

MEMPHIS, TENN.—Milne-Hooper Co., Tennessee street and Nettleton avenue, will start construction shortly of a 3-story, 50x120-foot building to be used for the manufacture of farm implements and machinery. A third story will be added to part of one of the two 2-story buildings now used, the latter being 90x120 feet and 70x120 feet.

DALLAS, TEX.—Texas Power & Light Co. plans constructing a power plant 65 miles southeast of Dallas on the Cotton Belt railroad erection to begin within 60 days. C. E. Calder is president.

EL PASO, TEX.—P. M. and Leo Kelly, operators of a machine shop at Dalhart, Tex., will construct a plant here for the manufacture of bits and spurs, pumps and engines and general machine shop work. Elmer S. James is contractor for the plant.

FORT WORTH, TEX.—Texas Acetylene Co., plans constructing a plant to cost approximately $75,000. The company recently was organized.

FORT WORTH, TEX.—Missouri-Kansas-Texas railroad will start enlargements on its roundhouse here in February, according to W. M. Whittenton, vice president and general manager. Improvements are expected to cost about $250,000.

GRAHAM, TEX.—Williamsport Wire Rope Co., West Fourth street, was damaged by fire recently with heavy loss. Machinery and plant were rendered useless.

RICHMOND, VA.—Old Dominion Iron & Steel Corp. has applied to building inspector for permit to construct a steel foundry on Belle Isle.

WOODLAND, WASH.—Northwestern Electric Co. will locate its $4,000,000 power plant on the Lewis river 25 miles east of here on a site now being cleared.

HUNTINGTON, W. VA.—Cabell Armature & Machine Co. has been incorporated for $25,000 to manufacture machinery and electrical equipment, by J. M. Turner and A. W. Conrad, 2204 Ninth avenue.

MOUNDSVILLE, W. VA.—A large power plant is contemplated for construction here. A. G. Foster of New York and J. Morgan of Cleveland are interested.

EAU CLAIRE, WIS.—Sketches by Architect Edward J. Hancock of this city for the proposed new senior high school and for rebuilding the present high school into a junior high and vocational school have been approved and working plans ordered by the board of education. The total cost will be $660,000. Fred Studdy is president of the board.

MILWAUKEE—J. H. Weber Co., Inc., has been incorporated with $20,000 capital stock by J. H., N. A. and M. L. Weber to manufacture furnaces and general sheet metal products, hardware specialties, etc.

MILWAUKEE—Earl P. Putrow and Frank Alioto have incorporated as the Val-Tul Corp. of Milwaukee to manufacture valve adjusting tools and other appliances for garages and machine shops.

MILWAUKEE—L. E. Pitner of Racine is

organizing a $125,000 corporation here to build a plant in the Menomonee valley to manufacture building blocks out of cinders by a patent process, for which he has the exclusive rights in Wisconsin.

MILWAUKEE—A loss of about $6000 was caused to buildings and equipment of the Special Machinery & Mfg. Co. at 1919 St. Paul avenue on Jan. 5. The company, of which Max P. Janisch is manager, makes mop heads and other hardware specialties, tools, etc.

MILWAUKEE—The Phillips-Pilson Refrigerating Co. has been incorporated with a capital of 100 common shares of no par value, to manufacture refrigerating machinery of all kinds. The incorporators are W. L. Phillips, O. Kloetzner, attorney, and D. E. Pilson, 600 Jefferson street.

MILWAUKEE—Architects R. A. Messmer & Bros., Majestic building, are drawing plans for a 5-story manufacturing plant, 120 x 120 feet, to be built at Milwaukee and Martin streets for the Alliance Investment Co. subsidiary of the Blatz Realty & Investment Co., 425 East Water street. Work will begin April 1.

OSHKOSH, WIS.—The old city market building and site, 80 x 240 feet, at Peal and Market street has been purchased by the Crane Co., Chicago, manufacturer of valves, which has maintained a large branch house here for many years and plans to erect a new 3 or 4-story building, concentrating offices, warehouses and service and machine shops, now at scattered locations.

WEST BEND, WIS.—Foeller, Schober & Stephenson, Green Bay, Wis., are architects for the new high school containing manual training shops, the building to be a 2-story, 160 x 180-foot with a sub-floor under the gymnasium for shops.

Business in Canada

SLAVE FALLS, MAN.—A power plant costing about $3,000,000 will be constructed here and a transmission line costing about $2,000,000 will be erected to Winnipeg for the Manitoba hydroelectric system.

WINNIPEG, MAN.—Farmer Jones Harvester Co. has been incorporated for $1,000,000, to manufacture and deal in machinery, farm implements, etc., by Alexander Farquhar, Frederick G. Thompson and Harry C. Blegen.

NIAGARA FALLS, ONT.—The Burgess Battery Co. is erecting an addition to its plant here to cost $44,000 and will require some equipment.

OWEN SOUND, ONT.—The nail and wire departments of the Northern Bolt, Screw & Wire Co., Ltd., here were damaged by fire Jan. 6, with a loss to building and equipment estimated at between $50,000 and $75,000. While the company has not announced plans it is expected that the plant will be rebuilt without delay.

PORT FRANCES, ONT.—Russell Bros. Ltd., has been incorporated to manufacture and deal in gasoline and other engines and machinery with $100,000 capital, by Colin Russel, Robert J. Russel and Alexander G. Murray.

ST. GEORGE, ONT.—William & Mitten are building a garage here and are in the market for complete equipment.

TORONTO, ONT.—The S. K. F. Co., manufacturer of roller bearings, etc., has secured a site on Bay street, where it will erect a new building.

TORONTO, ONT.—The Production Materials, Ltd., 165 Dufferin street, are asking for prices on a steel tank of 7000 or 8000 gallons capacity; also a 1000 gallon per hour oil pump, together with necessary pipes and valves for an oil blending plant.

TORONTO, ONT.—Rotary Steam Oil Burner Co., Ltd., has been incorporated to manufacture and deal in furnaces and heating apparatus, with $150,000 capital, by Laven Churchill, Ernest A. R. Newton and Harold O. Robinson.

TORONTO, ONT.—Wade & Butcher of Canada, Ltd., has been incorporated to manufacture and deal in cutlery, hardware and metal articles, with $40,000 capital, by Haswell F. Barkinson, Leonard A. Richard and Donald H. Rowan.

TORONTO, ONT.—Coleman Products Co., Ltd., has been incorporated to manufacture and deal in supplies, machinery and apparatus for lighting and heating purposes, with $50,000 capital, by Charles D. Magee, Ernest H. Stewart and Stanley J. Mogg.

TORONTO, ONT.—Fire Jan. 8, which broke out in the machine shop of the American Radiator So., 1322 Dufferin street, resulted in a heavy loss to building and machinery. A large number of lathes, drills, and other machinery for manufacturing radiators will be a total loss and have to be replaced.

MONTREAL, QUE.—Mussens, Ltd., are in the market for a 1000 or 2000 ton hydraulic press.

MONTREAL, QUE.—The New Brass Ware Co., will build addition to its foundry here to cost $16,000. The general contract has been awarded to the Marotta Construction Co., and the steel contract to the Dominion Bridge Co.

New Trade Publications

RESISTORS—A well illustrated booklet of 18 pages by the General Electric Co., Schenectady, N. Y., presents the company's line of enameled resistors and their advantages in railway signal work and other uses.

FORGING INGOTS—While pigs may always be pigs, the Mesta Machine Co., Pittsburgh, believes its forging ingots are different and says so in a leaflet that describes the features of production and the care used in the Mesta process.

INDUSTRIAL BUILDING—Handsome illustrations of various types of construction with a minimum of type matter serve to bring home the slogan "Building for a Purpose," emphasized in a booklet by W. W. Lindsay & Co., Inc., Philadelphia.

LIFT TRUCKS—Trucks designed to lift loads on skid platforms to transfer them from place to place are illustrated in a bulletin by the Revolvator Co., Jersey City, N. J. Various uses are shown in the illustrations and data sizes, capacities and dimensions are also given.

ALTERNATE TOOTH CUTTERS—Milling of keyways or deep slots by cutters having alternate cutting teeth is described in a booklet by the Goddard & Goddard Co., Detroit. Most of the pages are occupied by halftone illustrations of the cutters and their use.

BRASS ROD MEASURE—The Bridgeport Brass Co., Bridgeport, Conn., is sending free on request a chart by which the weight per 100 pieces can be obtained for any length and diameter of brass rod by using a straightedge and reading one figure.

FIRE BRICK—A booklet of pocket size, designed to aid all users of fire brick and other refractories, has been issued by the Botfield Refractories Co., Philadelphia. It suggests proper methods of laying fire brick, coating walls to protect brick, patching and replacements.

ELECTRICAL HEATERS—Space heaters made by the Cutler-Hammer Co., Milwaukee, Wis., are featured in a six-page pamphlet. Their use in keeping vaults warm and dry, in negative drying cabinets, valve houses in fire sprinkler systems, watchmen's towers and crane cabs is explained.

TWIST DRILL SPEEDS—An easy application of the slide rule principle to determine safe and economical cutting speeds for drills is being sent out by the Cleveland Twist Drill Co. In addition to the tabular presentation of speeds the jacket of the scale presents useful hints on the operation of drills.

CIRCUIT BREAKERS—Two additions to its line of circuit breakers are described in a bulletin of the Roller-Smith Co., New York. One is a double pole interlocked trip breaker and the other a shock-proof attachment for use in special locations. A number of other pieces of electrical equipment also are shown in this bulletin.

SURFACE AIR COOLER—A bulletin of 12 pages is used by the General Electric Co., Schenectady, N. Y., to present its surface cooler. The general construction, principles of operation and other features of the device are presented, with illustrations of actual installations. These coolers are used in closed systems of ventilation where air from the turbine-generator is recirculated to the machine after passing over the finned surface of tubes containing water as the cooling medium.

VERTICAL ENGINES—Engberg's Electric & Mechanical Works, St. Joseph, Mich., has issued a catalog describing enclosed, self-oiling engines of the vertical type. A general description of the engine is followed by details of the parts and assembly and by reproductions of blueprints. A horsepower table and other data complete the presentation.

ASH CONVEYOR—Copies of a report on the construction and operation of the steam jet ash conveyor at the terminal power plant of the Wabash railroad at Ft. Wayne, Ind., are being sent out by the Conveyors Corp. of America, Chicago. By its use cinders are delivered from the front of the boilers directly to cinder cars on an adjacent track, dustlessly and yet sufficiently dry to avoid freezing in cold weather.

ARC WELDING AND CUTTING—A manual of 127 pages, bound in cloth has been issued by the General Electric Co., Schenectady, N. Y., describing arc welding and cutting equipment. It is issued to "acquaint the uninformed in a general way with some of the applications of arc welding and to provide a simple and logical method by which one may acquire a certain familiarity with the manipulation of the electric welding arc and its characteristics." It is profusely illustrated with photographs, diagrams and charts. Of the three parts the first is devoted to general information on arc welding, the second to a training course for operators and the third to applications of arc welding. It is being distributed at a nominal price.

Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	15.50 to 16.50
Boston (dealers)	14.00 to 15.00
Buffalo	19.50 to 20.00
Chicago	18.00 to 18.50
Cleveland	20.00 to 20.50
Cincinnati (dealers)	16.00 to 16.50
Detroit	17.00 to 17.50
Eastern Pennsylvania	19.00 to 19.50
New York (dealers)	14.50 to 15.00
Pittsburgh	21.00 to 21.50
St. Louis	17.50 to 18.00
Valleys	21.50 to 22.00
No. 1 railroad steel New York (dealers)	14.75 to 15.25

COMPRESSED SHEETS

Buffalo	18.50 to 19.00
Chicago	15.50 to 16.00
Cleveland	18.00 to 18.50
Detroit	16.00 to 16.25
Pittsburgh	20.00
Valleys	20.00 to 20.50

BUNDLED SHEETS

Buffalo	14.50 to 15.00
Cincinnati (dealers)	12.00 to 12.50
Cleveland	15.50 to 16.00
Detroit	15.00 to 15.50
Eastern Pennsylvania	15.50 to 16.50
Pittsburgh	19.00
St. Louis	12.50 to 13.00
Valleys	18.00 to 18.50

SHEET CLIPPINGS, LOOSE

Chicago	11.50 to 12.00
Detroit	12.75 to 13.25

STEEL RAILS, SHORT

Birmingham	16.00 to 16.50
Detroit, No. 2	14.50 to
Chicago	20.00 to 20.50
Cincinnati (dealers)	17.50 to 18.00
Cleveland (over 6 ft.)	20.00 to 20.50
St. Louis	20.50 to 21.00

STOVE PLATE

Birmingham	15.00 to 16.00
Boston (consumers)	15.50 to 16.00
Buffalo	16.50 ot 17.00
Chicago	17.50 to 18.00
Cincinnati (dealers)	12.00 to 12.50
Cleveland	16.00 to 16.50
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	12.50 to 13.00
Pittsburgh	17.50 to 18.00
St. Louis	17.00 to 17.50

LOW PHOSPHORUS

Buffalo	22.50 to 23.00
Cincinnati (dealers)	17.50 to 18.00
Eastern Pennsylvania	23.00 to 24.00
Pitts. billet and bloom crops	26.00 to 26.50

SHOVELING STEEL

Chicago	17.75 to 18.25
Pittsburgh	15.50 to 16.00
St. Louis	17.50 to 18.00

KNUCKLES, COUPLERS, SPRINGS

Chicago	22.00 to 22.50
Eastern Pennsylvania	22.00 to 23.00
Pittsburgh	22.50 to 23.00
St. Louis	22.50 to 23.00

FROGS, SWITCHES, GUARDS

Chicago	18.50 to 19.00
Eastern Pennsylvania	19.00 to 19.50
St. Louis	19.50 to 20.00

BOILER PLATE, CUT

St. Louis	11.50 to 12.00

ANGLE BARS—STEEL

Buffalo	20.50 to 21.00
Chicago	19.50 to 20.00
St. Louis	19.00 to 19.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	14.00 to 15.00
Boston (dealers)	16.00 to 17.00
Buffalo No. 1	17.00 to 17.50
Buffalo No. 2	19.50 to 20.50
Cleveland, No. 1	17.00 to 17.50
Chicago, No. 1	18.00 to 18.50
Chicago, No. 2	18.00 to 18.50
Cincinnati, No. 1 (dealers)	13.50 to 14.00
Detroit, No. 2	15.00 to 15.50
Eastern Pennsylvania	21.00 to 22.00
New York, No. 1 (dealers)	17.00 to 17.50
Pittsburgh, No. 1	18.50 to 19.00
Pittsburgh, No. 2	21.00 to 21.50
St. Louis, No. 1	18.00 to 18.50
St. Louis, No. 2	18.00 to 18.50

WROUGHT PIPE

Boston (dealers)	13.00 to 13.50
Buffalo	14.00 to 14.50
Eastern Pennsylvania	18.50
New York (dealers)	13.25 to 13.75

YARD WROUGHT

Boston	15.50 to 16.00
Eastern Pennsylvania	19.00 to 20.00

CITY WROUGHT

New York, long	16.00 to 16.50

BUSHELING

Buffalo	18.50 to 19.00
Chicago, No. 1	16.25 to 16.75
Chicago, No. 2	12.50 to 13.00
Cincinnati, No. 1 (dealers)	12.50 to 13.00
Cleveland, No. 1	16.75 to 17.00
Cleveland, No. 2	15.25 to 15.75
Eastern Pennsylvania	15.00 to 16.00
Pittsburgh, No. 1	18.00 to 18.50
St. Louis, No. 1	16.50 to 17.00

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston (dealers)	11.50 to 12.00
Buffalo	14.75 to 15.25
Chicago	11.50 to 12.00
Cincinnati (dealers)	12.50 to 13.00
Cleveland	17.00 to 17.50
Detroit	13.00 to 13.50
Eastern Pennsylvania	15.50 to 16.50
New York (dealers)	12.50 to 13.00
Pittsburgh	17.00 to 17.50
St. Louis	10.50 to 11.00
Valleys	16.25 to 16.75

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	8.00 to 9.00
Boston (chemical)	16.00 to 16.50
Boston (dealers)	11.50 to 12.00
Buffalo	14.50 to 15.00
Chicago	14.75 to 15.25
Cincinnati (dealers)	12.50 to 13.00
Cleveland	17.00 to 17.25
Detroit	13.00 to 13.50
Eastern Pennsylvania (chem.)	19.50 to 20.50
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	11.25 to 11.75
Pittsburgh	17.00 to 17.50
St. Louis	14.50 to 15.00
Valleys	17.25 to 17.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	10.00 to 10.50
Cincinnati (dealers)	11.00 to 11.50
Cleveland	17.00 to 17.25
Detroit	13.00 to 13.50
Eastern Pennsylvania	13.50 to 14.50
New York (dealers)	10.25 to 10.75
Pittsburgh	15.50 to 16.00

IRON AXLES

Birmingham	19.00 to 20.00
Boston (consumers)	31.00 to 32.00
Buffalo	29.50 to 30.50
Chicago	30.50 to 31.00
Cincinnati (dealers)	24.00 to 24.50
Eastern Pennsylvania	30.00
St. Louis	28.00 to 28.50

IRON RAILS

Buffalo	18.00 to 18.50
Chicago	20.50 to 21.00
Cincinnati (dealers)	13.50 to 14.00
St. Louis	18.00 to 18.50

PIPES AND FLUES

Chicago	14.00 to 14.50
Cincinnati (dealers)	10.50 to 11.00
Cleveland	15.25 to 15.75
St. Louis	13.00 to 13.50

RAILROAD GRATE BARS

Buffalo	15.00 to 15.50
Chicago	17.50 to 18.00
Cleveland	16.00 to 16.50
Eastern Pennsylvania	17.00
New York (dealers)	15.00 to 15.50
St. Louis	17.00 to 17.50

FORGE FLASHINGS

Boston (dealers)	12.50 to 13.00
Buffalo	15.00 to 15.50
Chicago	14.00 to 14.50
Cleveland (under 10 in.)	16.00 to 16.50
Cleveland (over 10 in.)	15.25 to 15.75
Detroit	13.50 to 14.00
Pittsburgh	18.00 to 18.50

FORGE SCRAP

Boston (dealers)	11.50 to 12.00
Chicago	22.50 to 23.00
Eastern Pennsylvania	16.00 to 17.00

ARCH BARS AND TRANSOMS

Chicago	24.25 to 24.75
St. Louis	23.00 to 23.50

ANGLE BARS—IRON

Chicago	22.50 to 23.00
St. Louis	23.00 to 23.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	12.50 to 13.00
Buffalo	15.00 to 15.50
Chicago	15.50 to 16.00
Cleveland	18.25 to 18.50
Eastern Pennsylvania	18.50 to 19.00
Pittsburgh	18.50 to 19.00
St. Louis	14.50 to 15.00

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Boston (shipping point)	20.00 to 20.50
Buffalo	20.00 to 20.50
Chicago	22.00 to 22.50
Cleveland	20.00 to 20.50
Eastern Pennsylvania	25.00 to 26.00
Pittsburgh	22.50 to 23.00
St. Louis	23.00 to 23.50

SHAFTING

Boston (shipping point)	19.50 to 20.00
Chicago	22.00 to 22.50
Eastern Pennsylvania	25.00 to 26.00
New York (dealers)	19.50 to 20.50
St. Louis	20.00 to 20.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, tram car	17.00 to 18.00
Birmingham, iron	16.00 to 17.00
Boston (consumers)	18.00 to 19.00
Buffalo	20.50 to 21.00
Chicago, iron	20.00 to 20.50
Chicago, steel	22.00 to 22.50
Cincinnati	15.00 to 15.00
Eastern Pennsylvania	20.00 to 21.00
New York iron (dealers)	16.00 to 17.00
Pittsburgh, iron	21.00 to 21.50
Pittsburgh, steel	23.00 to 23.50
St. Louis, iron	20.50 to 21.00
St. Louis, steel	22.50 to 23.00

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 17.50
Boston (consumers)	19.50 to 20.00
Buffalo	19.00 to 19.50
Chicago No. 1 machinery	21.00 to 21.50
Chicago No. 1 railroad or agricultural	20.00 to 20.50
Cincinnati No. 1 Machinery cupola (net tons dealers)	20.00 to 20.50
Cleveland, cupola	20.00 to 20.50
Detroit (net tons)	19.50 to 20.50
Eastern Pennsylvania, cupola	19.50 to 20.50
New York, cupola (dealers)	17.00 to 17.50
Pittsburgh cupola	19.00 to 19.50
San Francisco, delivered	24.00
Seattle	18.00
St. Louis, railroad	20.50 to 21.00
St. Louis, agricultural	20.50 to 21.00
St. Louis, machinery	21.50 to 22.00
Valleys	19.50 to 19.75

HEAVY CAST

Boston (consumers)	17.50 to 18.00
Buffalo (breakable)	16.00 to 16.50
Cleveland	16.00 to 16.50
Detroit (automobile) (net ton)	22.50 to 23.50
Eastern Pennsylvania	18.00 to 18.50
New York (dealers)	17.00 to 17.50
Pittsburgh	18.00 to 18.50

MALLEABLE

Boston (railroad	19.00 to 20.00
Buffalo	20.50 to 21.00
Chicago, agricultural	18.50 to 19.00
Chicago, railroad	20.50 to 21.00
Cincinnati, agricultural (dealers)	17.00 to 17.50
Cincinnati, railroad (dealers)	17.50 to 18.00
Cleveland, agricultural	19.50 to 20.00
Cleveland, railroad	22.50 to 22.75
Detroit	18.25 to 18.75
Eastern Pennsylvania, railroad	16.50 to 17.00
Pittsburgh, railroad	22.50 to 23.00
St. Louis, agricultural	17.75 to 18.00
St. Louis, railroad	18.25 to 18.75

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

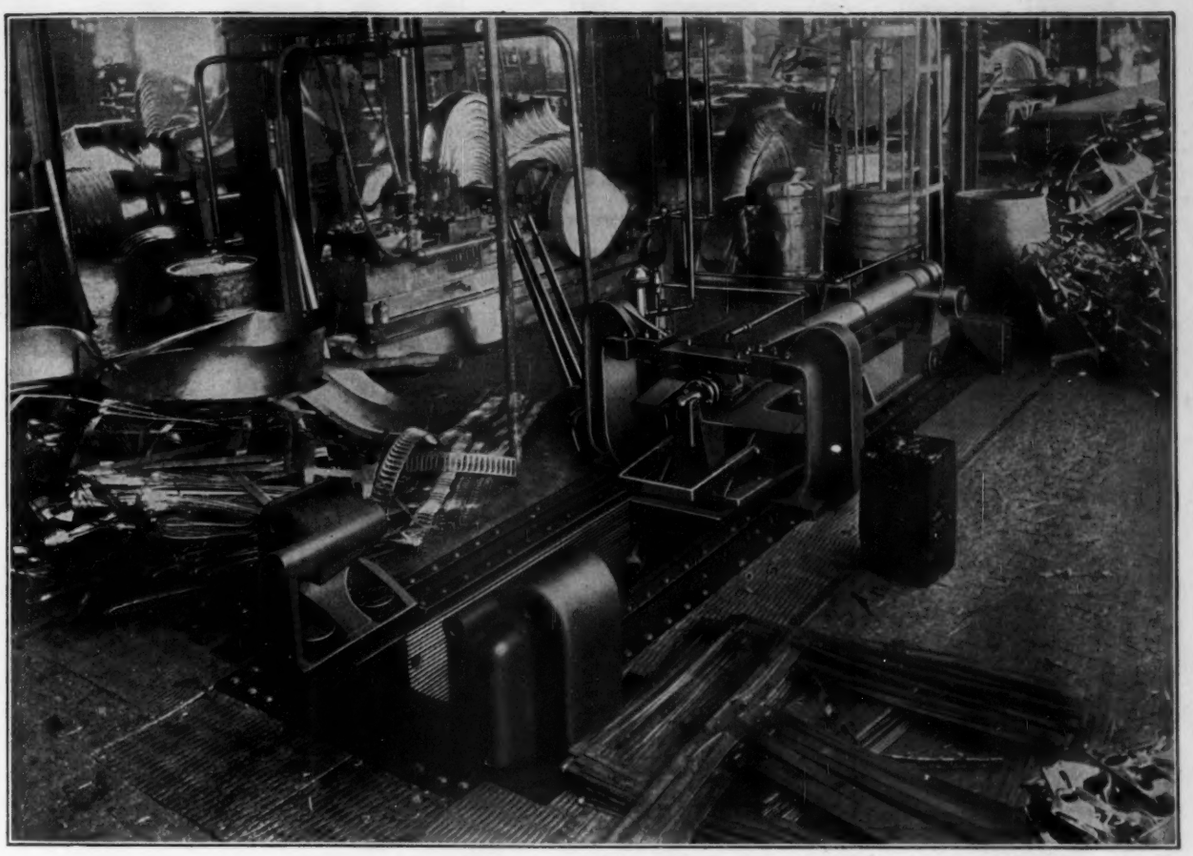
Birmingham tram car	18.00 to 19.00
Boston (dealers)	15.50 to 16.00
Chicago	20.00 to 20.50
Cleveland	21.00 to 21.25
Detroit	18.50 to 19.00
Eastern Pennsylvania	21.00
New York (dealers)	17.50 to 18.00
Pittsburgh district	22.50 to 23.00
St. Louis	21.00 to 21.50

LOCOMOTIVE TIRES

Chicago (cut)	23.00 to 23.50
St. Louis	19.50 to 20.00

LOW PHOSPHORUS PUNCHINGS

Chicago	21.00 to 21.50
Eastern Pennsylvania	22.00
Pittsburgh	23.00 to 23.50



Typical Installation in Well-Known Automobile Plant

WHY SHEET-SCRAP CAN BE PROFITABLY COMPRESSED

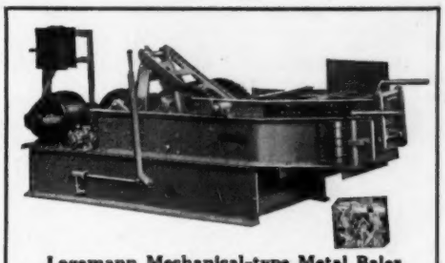
It commands at all times the best price;
It can be more conveniently stored;
It can be more economically handled;
It can be readily held for favorable markets;
It practically eliminates corrosion;
It permits of loading cars to capacity;
It saves much heat in remelting.

LOGEMANN SCRAP-METAL PRESSES

Hydraulic and Mechanical Types

LOGEMANN BROTHERS COMPANY
3126 Burleigh St. Milwaukee, Wis.

Also presses making crucible-size bricks of copper, brass, aluminum and other metals.



Logemann Mechanical-type Metal Baler

Please indicate character of scrap, quantity and heaviest gauge, when writing.

Iron and Steel Prices

Nuts and Bolts

F.o.b. producer's plant freight allowed on 1000 pounds or more, substantially all points east of Mississippi and north of Ohio river.

Hot pressed square tapped or blank .....$4.00 off list
Hot pressed hexagon tapped or blank .....$4.40 off list
Cold punched square or hexagon blank .....$4.10 off list
Cold punched square or hexagon tapped or blank .....$4.10 off list
Cold punched semifinished hexagon nuts ½-inch and larger ....75, 10 and 5 off
Cold punched semifinished hexagon nuts 9/16-inch and smaller..80, 10 and 5 off
Price f.o.b. Pittsburgh, packages of 50.

CARRIAGE BOLTS

(½ x 6", smaller and shorter)

Rolled thread .....50, 10 and 5*
Rolled thread .....50, 10 and 10 off
Cut thread (all sizes) .....50 and 10 off
Eagle carriage bolts (Eagle list) 65 and 10 off

MACHINE BOLTS

(½ x 4", hot pressed nuts)

Rolled thread .....50, 10 and 5*
Rolled thread .....60 and 10 off
Cut thread (all sizes) ....50, 10 and 10 off
(All sizes cold punched nuts)
Cut thread .....45, 10 and 5 off
Lag screws .....60, 10 and 10 off
Plow bolts Nos. 1, 2 and 3 heads.. 50 and 10 off
4 to 10 heads .....50-10 + 20 off
*Flat and round head stove bolts.... .....80 and 5 off
Tap bolts .....30 off
Bolt ends with hot pressed nuts..... .....50, 10 and 10 off
Bolt ends with cold punched nuts.... .....45, 10 and 5 off
Blank bolts .....50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size) ....40 and 10 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight Allowed

	S. A. E. Castellated	U. S. S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application
*Price quoted on small business.

HEXAGON CAP AND SET SCREWS

Milled .....80, 10, and 10 off
Upset .....80, 10, 10 and 10 off
*F.o.b. producer's plant freight allowed on 300 pounds or more as above.

Rivets

Structural rivets, carloads Pittsburgh and Cleveland.... 2.60c
Structural rivets, carloads, Chicago 2.75c
Rivets, 7/16-in. and smaller Pittsburgh and Cleveland..70, 10 and 5 off
Rivets, 7/16-in. and smaller Chicago* .....70, 10 off
*Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought, c. l., Chicago dist..... .....$5.75 to $6.00 off
Wrought, c. l., Pitts. dist.....$6.10 off
Lock washers f.o.b. factory 80, 10 and 5 off

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount of $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

½-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

THREADS AND COUPLINGS

Butt Weld

⅛ and ¼-inch	+11	+39
⅜-inch	22	2
½-inch	28	11
¾-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
7 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

Butt Weld

⅛ and ¼-inch	+19	+54
⅜-inch	21	7
½-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
⅝-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

SEAMLESS COLD DRAWN*

1-inch	51-off
1¼ and 1½-inch	43 off
1¾-inch	27 off
2 and 2¼-inch	18 off
2½ and 2¾-inch	28 off
3 and 3¼-inch	32 off
3½ and 3¾-inch	33 off
4-inch	37 off
4½ and 5-inch	29 off

SEAMLESS HOT ROLLED*

3 and 3¼-inch	34 off
3½ and 3¾-inch	35 off
4-inch	39 off

SEAMLESS STEEL MERCHANT BOILER TUBES*

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cents to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING*

Base Discounts

Carbon, 0.10 to 0.20 per cent	83 off
Carbon, 0.30 to 0.40 per cent	81 off
Carbon, 0.40 to 0.50 per cent	net price

Plus differentials and extras for cutting.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES*

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	15c
2-inch	11-gage	16c
2-inch	10-gage	17c
2¼-inch	12-gage	17c
2¼-inch	11-gage	18c
2¼-inch	10-gage	20c
3-inch	7-gage	35c
1½-inch	9-gage	15c
5⅜-inch	9-gage	55c
5½-inch	9-gage	57c

Plus usual extras for forming and for long lengths.

*Published discounts are subject to considerable shading, in some cases as much as five extra 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$53.20 to 54.20
Six-inch and over, Chicago	49.20 to 50.20
Four-inch, Birmingham	44.00 to 44.50
Six-inch and over Birmingham	40.00 to 40.50
Four-inch, New York	60.50 to 61.60
Six-inch and over, New York	55.50 to 56.60

Standard fittings, Birmingham, base..$110.00
6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.
Class A pipe is $5 higher than Class B.